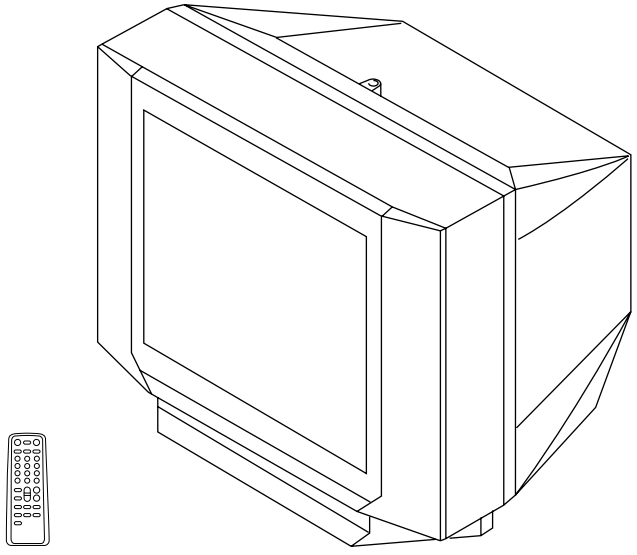
Self Diagnosis
Supported model

SERVICE MANUAL

BG-3S CHASSIS

MODEL	COMMANDER	DEST.	CHASSIS NO.	MODEL	COMMANDER	DEST.	CHASSIS NO.
KV-1499M7J	RM-952	ME	SCC-U30L-A				



MICROFILM

TRINITRON® COLOR TV

SONY®

SPECIFICATIONS

		Note
Power requirements	110-240 V AC, 50/60 Hz	
Power consumption (W)	Indicated on the rear of the TV	
Television system	B/G, I, D/K, M	
Color system	PAL, PAL 60, SECAM, NTSC4.43, NTSC3.58	
Channel coverage		
B/G	VHF: E2 to E12 / UHF: E21 to E69 / CATV: S01 to S03, S1 to S41	
I	VHF: B2 to B68 / CATV: S01 to S03, S1 to S41	
D/K	VHF: C1 to C12, R1 to R12 / UHF: C13 to C57, R21 to R60 CATV: S01 to S03, S1 to S41, Z1 to Z39	
M	VHF: A2 to A13 / UHF: A14 to A79 / CATV: A-8 to A-2, A to W+4, W+6 to W+84	
ㄱ (Antenna)	75-ohm external terminal	
Audio output	3W + 3W	
Number of terminal		
㉿ (Video)	Input: 2 Output: 1	Phono jacks; 1 V_{P-P}, 75 ohms
≥ (Audio)	Input: 2 Output: 1	Phono jacks; 500 mVrms
ㅐ (Earphone)	Output: 1	Minijack
Picture tube	14 inch	
Tube size (cm)	37	Measured diagonally
Screen size (cm)	34	Measured diagonally
Dimension (w/h/d, mm)	466 × 341 × 416	
Mass (kg)	14	

Design and specifications are subject to change without notice.

CAUTION

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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SELF DIAGNOSTIC FUNCTION

The units in this manual contain a self-diagnostic function. If an error occurs, the STANDBY/TIMER lamp will automatically begin to flash.
The number of times the lamp flashes translates to a probable source of the problem. A definition of the STANDBY/TIMER lamp flash indicators is listed in the instruction manual for the user's knowledge and reference. If an error symptom cannot be reproduced, the remote commander can be used to review the failure occurrence data stored in memory to reveal past problems and how often these problems occur.

1. DIAGNOSTIC TEST INDICATORS

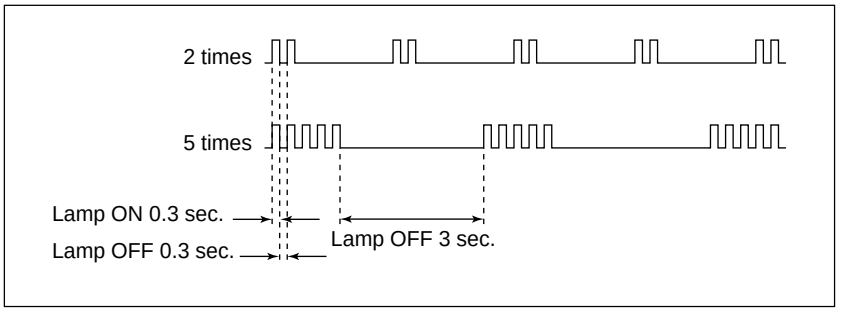
When an errors occurs, the STANDBY/TIMER lamp will flash a set number of times to indicate the possible cause of the problem. If there is more than one error, the lamp will identify the first of the problem areas.

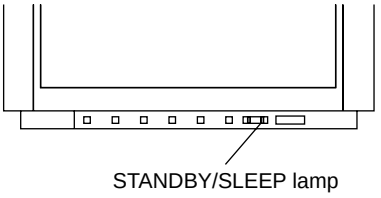
Result for all of the following diagnostic items are displayed on screen. No error has occured if the screen displays a "0".

Diagnostic Item Description	No. of times STANDBY/TIMER lamp flashes	Self-diagnostic display/Diagnostic result	Probable Cause Location	Detected Symptoms
• Power does not turn on	Does not light	—	• Power cord is not plugged in. • Fuse is burned out F4601 (F)	• Power does not come on. • No power is supplied to the TV. • AC power supply is faulty.
• +B overcurrent (OCP) or overvoltage (OVP) • Vertical deflection stopped • Horizontal deflection overdrive	2 times	002:000 or 002:001~255 003:001~255 004:001~255 at the same time	• H.OUT Q511 is shorted. (A board) • -13V is not supplied. (A board) • IC 503 faulty (A board) • IC 301 faulty (A board)	• Power does not come on. • Load on power line is shorted. • Has entered standby state after horizontal raster. • Vertical deflection pulse is stopped. • Power line is shorted or power supply is stopped.
• White balance failure (no PICTURE)	5 times	005:000 or 005:001~225	• G2 is improperly adjusted. (Note 2) • CRT problem. • IC301 is faulty. (A board) • No connection A board to C3 board.	• No raster is generated. • CRT cathode current detection reference pulse output is small.
• Micro reset	—	101:00 or 101:001~225	• Discharge CRT (C3 Board) • Static discharge • External noise	• Power is shut down shortly, after this return back to normal. • Detect Micro latch up.

Note 1: If a + B overcurrent is detected, stoppage of the vertical deflection is detected simultaneously.
The symptom that is diagnosed first by the microcontroller is displayed on the screen.
Note 2: Refer to screen (G2) Adjustment in section 3-4 of this manual.

2. DISPLAY OF STANDBY/TIMER LIGHT FLASH COUNT





Diagnostic Item	Flash Count*
+B overcurrent/overvoltage Vertical deflection stopped	2 times
White balance failure	5 times

* One flash count is not used for self-diagnostic.

3. STOPPING THE STANDBY/TIMER FLASH

Turn off the power switch on the TV main unit or unplug the power cord from the outlet to stop the STANDBY/TIMER lamp from flashing.

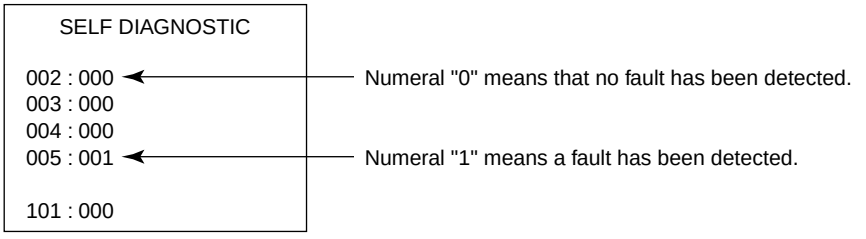
4. SELF-DIAGNOSTIC SCREEN DISPLAY

For errors with symptoms such as “power sometimes shuts off” or “screen sometimes goes out” that cannot be confirmed, it is possible to bring up past occurances of failure for confirmation on the screen:

[To Bring Up Screen Test]
In standby mode, press buttons on the remote commander sequentially in rapid succession as shown below:

Screen display ➡ channel 5 ➡ Sound volume - ➡ Power ON
⇧
Note that this differs from entering the service mode (mode volume +).

Self-Diagnosis screen display


SELF DIAGNOSTIC
002 : 000
003 : 000
004 : 000
005 : 001
101 : 000
Numeral "0" means that no fault has been detected.
Numeral "1" means a fault has been detected.

5. HANDLING OF SELF-DIAGNOSTIC SCREEN DISPLAY

Since the diagnostic results displayed on the screen are not automatically cleared, always check the self-diagnostic screen during repairs. When you have completed the repairs, clear the result display to “0”.

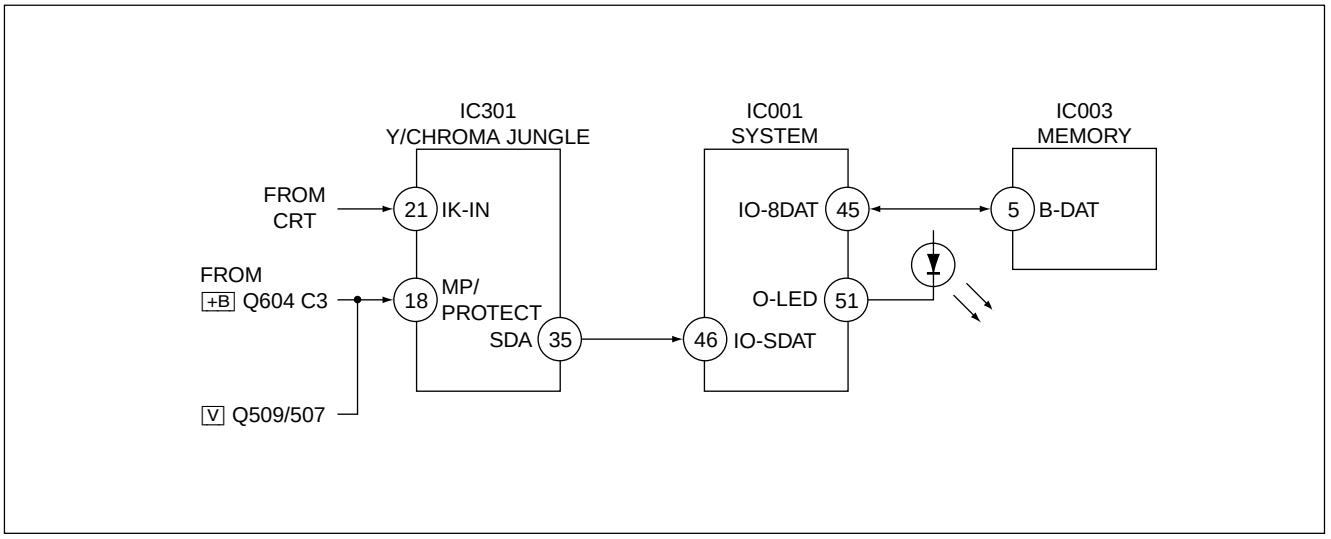
Unless the result display is cleared to “0”, the self-diagnostic function will not be able to detect subsequent faults after completion of the repairs.

[Clearing the result display]
To clear the result display to “0”, press buttons on the remote commander sequentially as shown below when the diagnostic screen is being displayed.

Channel 8 ➡ 0

[Quitting Self-diagnostic screen]
To quit the entire self-diagnostic screen, turn off the power switch on the remote commander or the main unit.

6. SELF-DIAGNOSTIC CIRCUIT



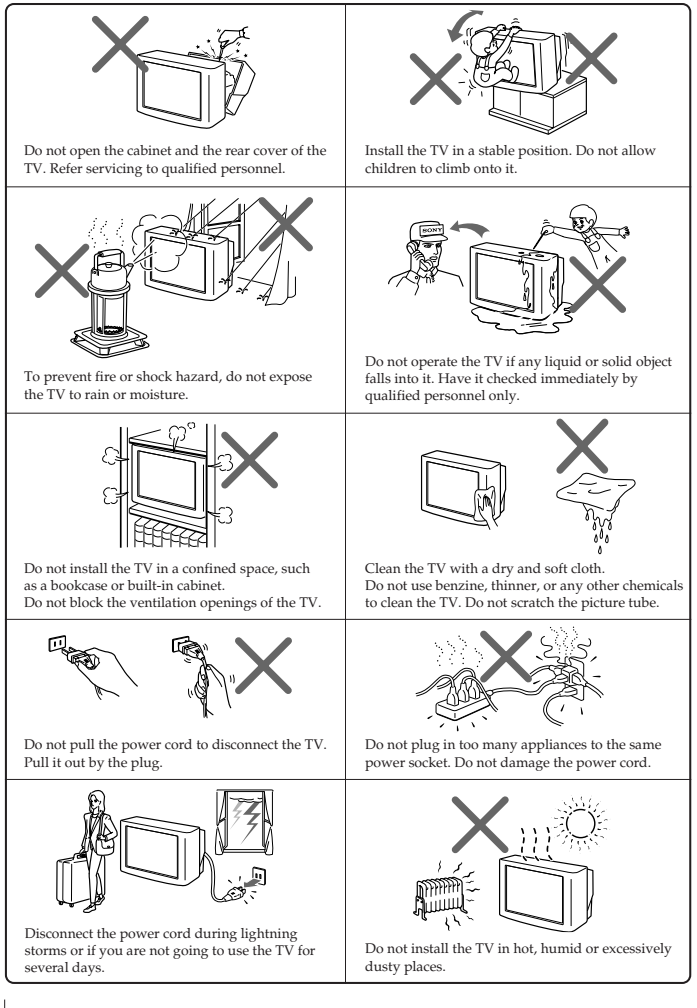
+B overcurrent (OCP)	Occurs when an overcurrent on the +B(135) line is detected by Q604. If Q604 go to ON and the voltage to pin 18 of IC301 should go down when V.SYNC is more than seven verticals in a period, the unit will automatically turn off.
Vertical deflection stopped	Occurs when an absence of the vertical deflection pulse is detected by Q509 and IC001 shut down the power supply.
Vertical deflection overcurrent	Occurs when an overcurrent on V drive line is detected by Q507. Power supply will be shut down when detect this by IC001.
White balance failure	If the RGB levels* do not balance or become low level within 5 seconds, this error will be detected by IC301. TV will stay on, but there will be no picture. * (Refers to the RGB levels of the AKB detection Ref pulse that detects IK.)

The operating instructions mentioned here are partial abstracts from the Operating Instruction Manual. The page numbers of the Operating Instruction Manual remain as in the manual.

SECTION 1
GENERAL

WARNING

- Dangerously high voltages are present inside the TV.
- Operate the TV only between 110 – 240 V AC.



Do not open the cabinet and the rear cover of the TV. Refer servicing to qualified personnel.

Install the TV in a stable position. Do not allow children to climb onto it.

To prevent fire or shock hazard, do not expose the TV to rain or moisture.

Do not operate the TV if any liquid or solid object falls into it. Have it checked immediately by qualified personnel only.

Do not install the TV in a confined space, such as a bookcase or built-in cabinet.
Do not block the ventilation openings of the TV.

Clean the TV with a dry and soft cloth.
Do not use benzine, thinner, or any other chemicals to clean the TV. Do not scratch the picture tube.

Do not pull the power cord to disconnect the TV. Pull it out by the plug.

Do not plug in too many appliances to the same power socket. Do not damage the power cord.

Disconnect the power cord during lightning storms or if you are not going to use the TV for several days.

Do not install the TV in hot, humid or excessively dusty places.

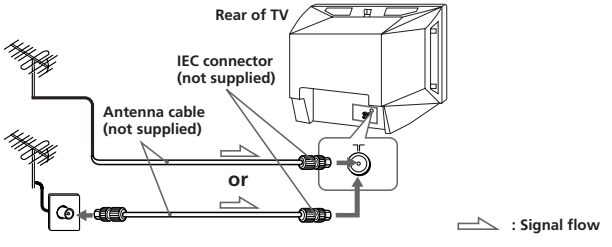
Using Your New TV

Getting Started

Step 1

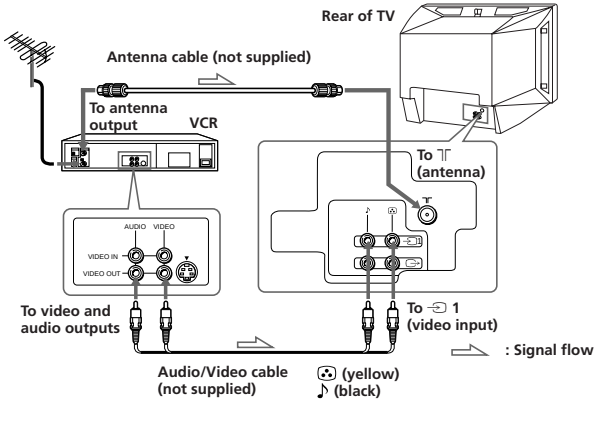
Connect the antenna

If you wish to connect a VCR, see the "Connecting a VCR" diagram below.



Connecting a VCR

To watch the video, press → 1 (see page 11).



Notes

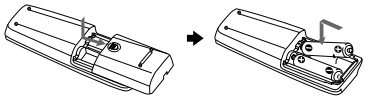
- If you connect a stereo VCR, connect the yellow plug to (the yellow jack) and the white plug to ♪ (the black jack).
- If you connect a VCR to the ⊤ (antenna) terminal, preset the signal output from the VCR to the program number 0 on the TV.
- When no signal is input to the connected video equipment, the TV screen becomes blue.

CAUTION

Do not connect the power cord until you have completed making all other connections; otherwise a minimum leakage current might flow through the antenna and other terminals to ground.

Step 2

Insert the batteries into the remote

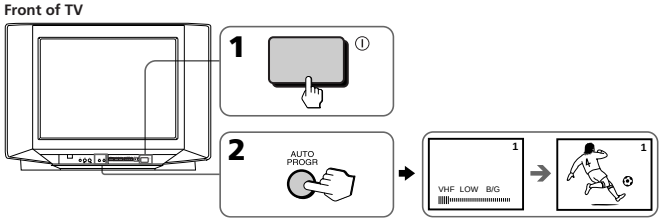


Note

- Do not use old batteries nor use different types of batteries together.

Step 3

Preset the channels automatically



Tips

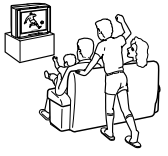
- If you want to stop automatic channel presetting, press SELECT twice.
- If your TV has preset an unwanted channel or cannot preset a particular channel, then preset your TV manually (see page 8).

Note (KV-1499M70/1499M7J only)

- During automatic channel presetting, your TV screen will indicate "B/G", "I", "D/K" or "M" for the TV system (TV SYS).

Now You Are Ready. . .

To watch your TV, see page 10.

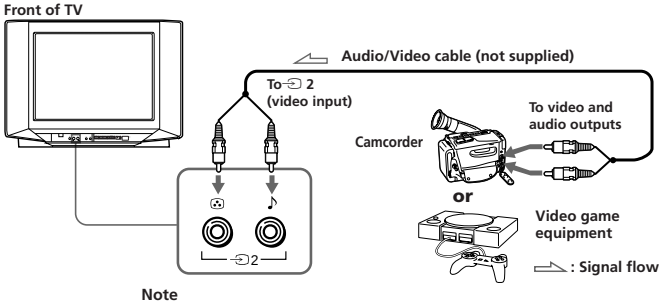


Connecting optional components

You can connect optional video components, such as a VCR, multi disc player, camcorder or video game.

To watch the picture of the connected equipment, press (see page 11).

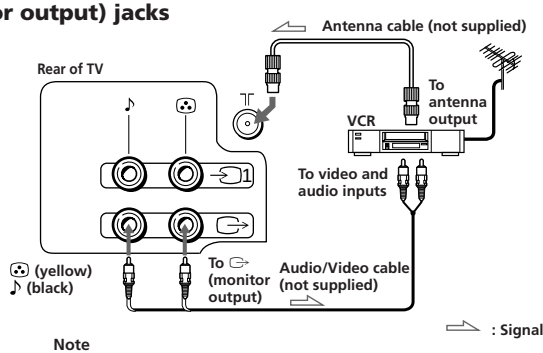
Connecting a camcorder/video game equipment using the (video input) jacks



Note

- You can also connect video equipment to the 1 (video input) jacks at the rear of your TV.

Connecting video equipment using the (monitor output) jacks



Note

- When connecting a stereo VCR, connect the yellow plug to (the yellow jack) and the white plug to ♪ (the black jack).

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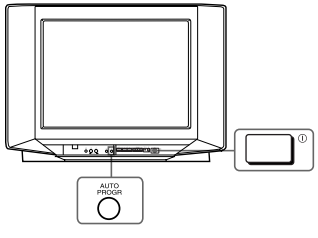
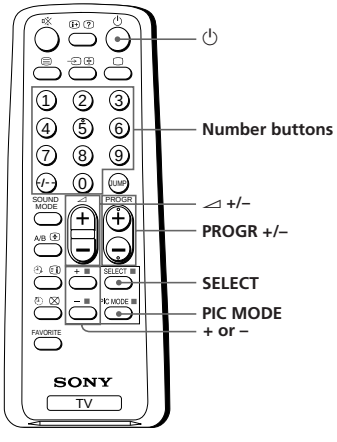
Presetting channels

You can preset up to 100 TV channels in numerical sequence from program number 1 using the remote and the buttons on your TV as well.

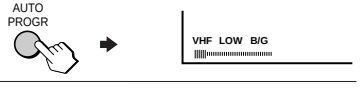




Presetting channels automatically

1 Press ⏻ to turn on the TV.

2 Press AUTO PROGR.



Note (KV-1499M70/1499M7J only)

- During automatic channel presetting, your TV screen will indicate "B/G", "I", "D/K" or "M" for the TV system (TV SYS).

To preset channels automatically from a specified program number

(1) Press SELECT until "AUTO PROGRAM" appears.

(2) Press + or –.
The on-screen display will start flashing.

(3) Press PROGR +/– or the number buttons until the desired program number appears.

(4) Press + or –.

continued

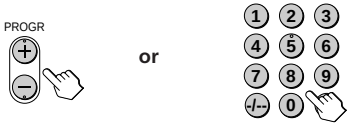
Presetting channels (continued)

Presetting channels manually

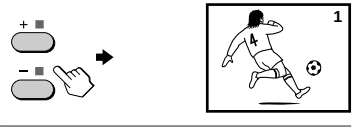
1 Press SELECT until "MANUAL PROGRAM" appears.

2 Press + or –.

3 Press PROGR +/– or the number buttons until the desired program number appears.



4 Press + or – until the desired channel picture appears.

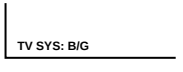


5 Press SELECT.

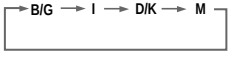
To change the TV system setting (KV-1499M70/1499M7J only)

If the picture or sound is abnormal when receiving programs through the ⅂ (antenna) terminal

(1) Press SELECT until "TV SYS" appears.



(2) Press + or – to select the appropriate TV system until the picture or sound quality is optimal.



To change the color system setting

If the color is abnormal when receiving programs through the ⅂ (antenna) terminal or the ⇨ (video input) jack

(1) Press SELECT until "COL SYS" appears.

COL SYS : AUTO

(2) Press + or – to select the appropriate color system until the color is optimal.

AUTO → PAL → SECAM → NTSC 3.58 → NTSC 4.43

Tip

- Normally set "COL SYS" to "AUTO".

Skipping program numbers

1 Press PROGR +/– or the number buttons until the unused or unwanted program number appears.

2 Press SELECT until "MANUAL PROGRAM" appears.

3 Press + or –.

4 Press PIC MODE.

5 Press SELECT.

To preset the skipped program number again

Preset the channel automatically or manually.

Tip

- You can also use SELECT and ◿ +/– on the TV to preset channels and skip program numbers.

To use the fine tuning (FINE) function

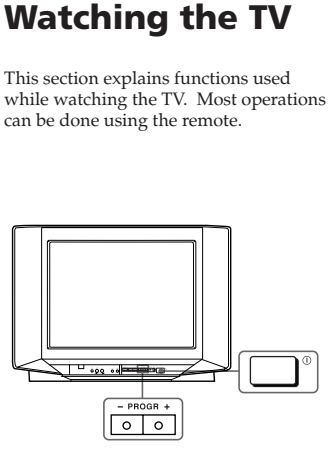
The fine tuning (FINE) function may help to reduce the following problems: double images and lines moving across the TV screen.

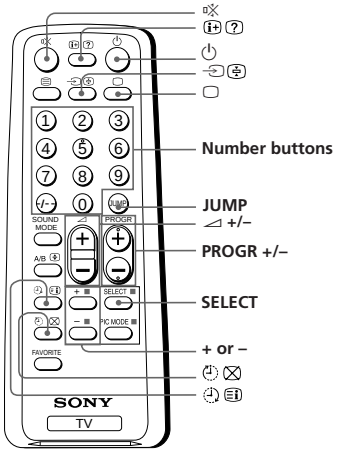
You can use the fine tuning function as below:

(1) Select the program number you want to adjust.
(2) Press SELECT until "MANUAL PROGRAM" appears on the screen.
(3) Press + or – on the remote control once.
(4) Press i ? to display "FINE" on the screen.
(5) Press + or – continuously until the above problems are minimized. The + or – icon on the screen flashes while tuning.
(6) Press SELECT to return to normal screen.

Watching the TV

This section explains functions used while watching the TV. Most operations can be done using the remote.





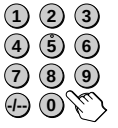
1 Press ⏻ to turn on the TV.

When the TV is in the standby mode (the ⏻ indicator on the TV is lit red), press ⏻ on the remote or PROGR +/– on the TV.

2 Press PROGR +/– or the number buttons to select the TV program.

For double digit numbers, press -/--, then the number (e.g., for 25, press -/--, then 2 and 5).

or



3 Press ◿ +/– to adjust the volume.

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RM-952

Additional tasks

To	Do this
Turn off temporarily	Press ⏻. The ⏻ indicator on the TV lights up red.
Turn off completely	Press ⏻ on the TV.
Mute the sound	Press 🔇.
Watch the video input (VCR, camcorder, etc.)	Press ⏎ to select "VIDEO 1" or "VIDEO 2". To return to the TV program, press 🖵.
Jump back to the previous channel	Press JUMP.
Display the on-screen information*	Press ⓘ.
Adjust the volume of each TV program automatically	Press SELECT repeatedly until "INTELLIGENT VOL" appears, then press + or – to select "ON". To cancel, select "OFF".

* The picture, sound, and either the program number or video mode are displayed. The on-screen display for the picture and sound information disappears after about 3 seconds.

Changing the on-screen display language

1 Press SELECT until "LANGUAGE / اللغة : ENGLISH" appears on the screen.

2 Press + or – to select "عربي".

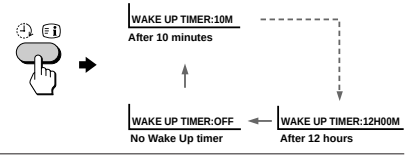
Tip

- You can also use SELECT and +/– on the TV to select the on-screen display language.

continued

Setting the Wake Up timer

1 Press 🕘 until the desired period of time appears.



2 Select the TV program or video mode you want to display when you wake up.

3 Press ⏻ or set the Sleep timer if you want the TV to turn off automatically.

The 🕘 indicator on the TV lights up orange.

To cancel the Wake Up timer

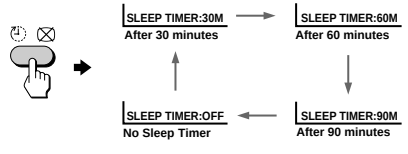
Press 🕘 until "WAKE UP TIMER: OFF" appears or turn off the TV's main power.

Notes

- The Wake Up timer starts immediately after the on-screen display disappears.
- If no buttons or controls are pressed for more than two hours after the TV is turned on using the Wake Up timer, the TV automatically goes into the standby mode. To continue watching the TV, press any button or control on the TV or the remote.

Setting the Sleep timer

Press ⏲ until the desired period of time appears.

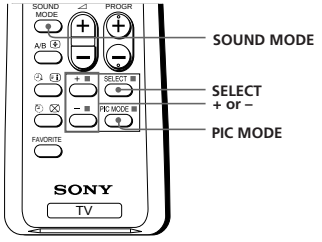


To cancel the Sleep timer

Press ⏲ until "SLEEP TIMER: OFF" appears or turn the TV off.

Customizing the picture and sound

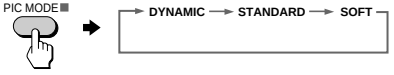
You can customize the picture and sound by selecting the picture and sound modes or by adjusting its settings.



Selecting the picture and sound modes

To select the picture mode

Press PIC MODE repeatedly until you get the desired picture mode.



Select	To
DYNAMIC	receive high contrast pictures.
STANDARD	receive normal contrast pictures.
SOFT	receive mild pictures.

To select the sound mode

Press SOUND MODE repeatedly until you get the desired sound mode.

Select	To
DYNAMIC	listen to dynamic and clear sound that emphasizes the low and high sound.
DRAMA	listen to sound that emphasizes vocals and background music.
SOFT	receive soft sound.

continued

Customizing the picture and sound (continued)

Adjusting the picture and sound settings

1 Press SELECT until the desired setting appears.

Each time you press SELECT, the setting item will change as follows:

2 Press + or – to adjust the item.

3 To adjust other items, repeat steps 1 to 2.

* "HUE" can be adjusted for NTSC system only.

Notes

- When you select a picture or sound mode, the adjusted settings will be reset according to the selected mode.
- You can also use SELECT and ◿ +/– on the TV to adjust the sound and picture settings.

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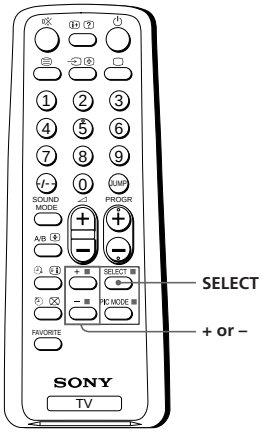
Blocking the channels (CHILD LOCK)

You can prevent a child from watching certain programs by using the buttons on the remote control.



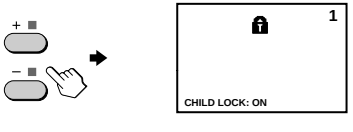
1 Select the TV program you want to lock.

2 Press SELECT until "CHILD LOCK" appears on the screen.

3 Press + or – to select "ON".

The 🔒 symbol appears on the screen.

To unlock the channel, press + or – to select "OFF". The 🔒 symbol disappears from the screen.



Note

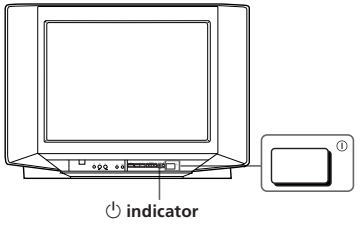
- If you preset a locked channel, that particular channel will be unlocked automatically.

Additional Information

Self-diagnosis function

Your TV is equipped with a self-diagnosis function. If there is a problem with your TV, the ⏻ indicator flashes red. The number of times the ⏻ indicator flashes indicates the possible causes.

Front of TV



1 Check that the ⏻ indicator flashes red a number of times between 3-second intervals.

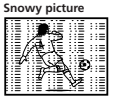
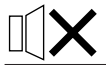
2 Count the number of times the ⏻ indicator flashes.

3 Press ⏻ (main power) to turn off your TV.

4 Inform your nearest Sony service center about the number of times the ⏻ indicator flashes.
Be sure to note the model name and serial number located on the rear of your TV.

Troubleshooting

If you find any problem while viewing your TV, please check the following guide. If any problem persists, contact your Sony dealer .

Symptom	Solutions	Possible cause
Snowy picture  Noisy sound	• Check the antenna cable and connection on the TV, VCR and on the wall. (page 4)	• Connection is loose or the cable is damaged.
	• Press SELECT until "MANUAL PROGRAM" appears on the screen then preset the channel again. (page 8)	• Channel presetting is inappropriate or incomplete.
	• Check the antenna type (VHF/UHF). Contact a Sony dealer for advice.	• The antenna type is inappropriate.
	• Adjust the antenna direction. Contact a Sony dealer for advice.	• The antenna direction is inappropriate.
	• Try using a booster.	• Signal transmission is low.
Distorted picture Noisy sound	• Turn off or disconnect the booster if it is in use.	• Broadcast signals are too strong.
Good picture Noisy sound	• If the sound of some channels are noisy, select the channel, then select the appropriate TV system (TV SYS). (page 8)	• The TV system setting is inappropriate.
No picture No sound 	• Check the power cord, antenna and the VCR connections.	• The power cord, antenna or VCR is not connected.
	• Press ⏻ (power). • Press ⏻ (main power) on the TV to turn off the TV for about five seconds, then turn it on again.	• The TV is not turned on.

continued

Troubleshooting (continued)

Symptom	Solutions	Possible cause
Good picture No sound	• Press + to increase the volume level.	• The volume level is too low.
	• Press 🔇 to cancel the muting.	• The sound is muted.
Dotted lines or stripes	• Do not use a hair dryer or other equipment near the TV. • Adjust the antenna direction for minimum interference. Contact a Sony dealer for advice.	• There is local interference from cars, neon signs, hair dryers, power generators, etc.
Double images or "ghosts"	• Use a highly directional antenna. • Use the fine tuning (FINE) function. (page 9)	• Broadcast signals are reflected by nearby mountains or buildings.
	• Adjust the antenna direction. Contact a Sony dealer for advice.	• The antenna direction is inappropriate.
	• Turn off or disconnect the booster if it is in use.	• Use of a booster is inappropriate.
No color	• Press SELECT until "COLOR" appears on the screen, then press + or – to adjust the color level. (page 14)	• The color level setting is too low.
	• Press SELECT until "COL SYS " appears on the screen, then check the color system setting (usually set this to "AUTO"). (page 9).	• The color system setting is inappropriate.
	• Adjust the antenna direction. Contact a Sony dealer for advice.	• The antenna direction is inappropriate.
Abnormal color patches	• Keep external speakers or other electrical equipment away from the TV. Do not move the TV while the TV is turned on. Press ⏻ (main power) on the TV to turn off the TV for about five minutes, then turn it on again.	• The magnetic disturbance from external speakers or other equipment, or the direction of the earth's magnetic field may affect the TV.

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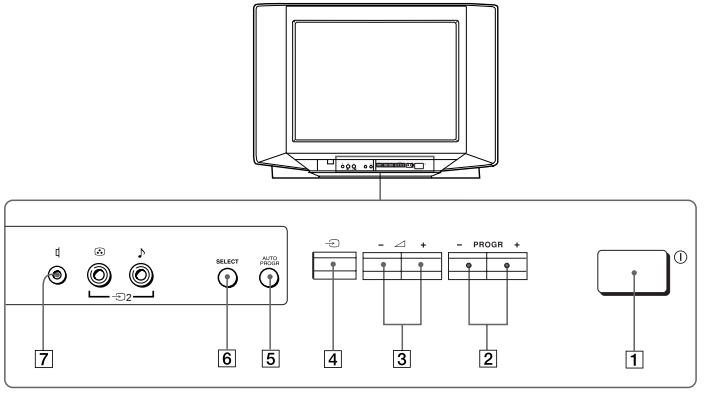
Symptom	Solutions	Possible cause
Lines moving across the TV screen	• Use the fine tuning (FINE) function. (page 9)	• There is interference from external sources, e.g., heavy machineries, nearby broadcast station.
The ⏻ indicator on your TV flashes red a number of times between 3-second intervals.	• Contact your nearest Sony service center. (page 16)	• Your TV may need service.
TV cabinet creaks.	—	• Changes in room temperature sometimes make the TV cabinet expand or contract, making a noise. This does not indicate a malfunction.
A "boom" sound is heard when the TV is turned on.	—	• The TV's demagnetizing function is working. This does not indicate a malfunction.

Identifying parts and controls

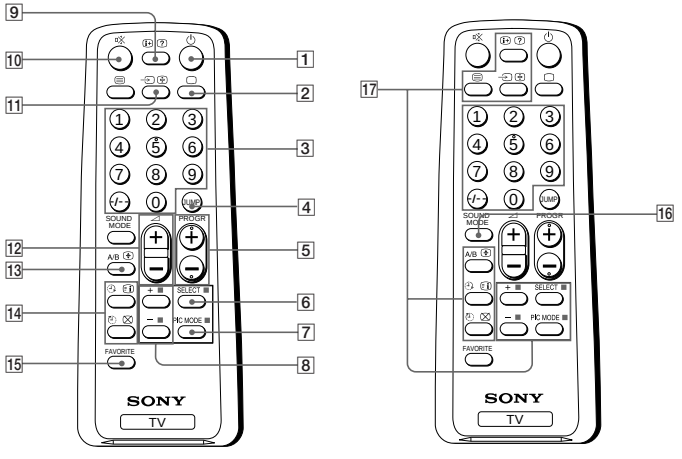
Refer to the pages indicated in parentheses ( ) for details.

Front panel



1 ⏻ (main power) button (10)
2 PROGR +/– (program) buttons (10)
3 +/– (volume) buttons (10)
4 (TV/video) button (11)
5 AUTO PROGR (program) button (5)
6 SELECT button (9)
7 (earphone) jack

Remote Control



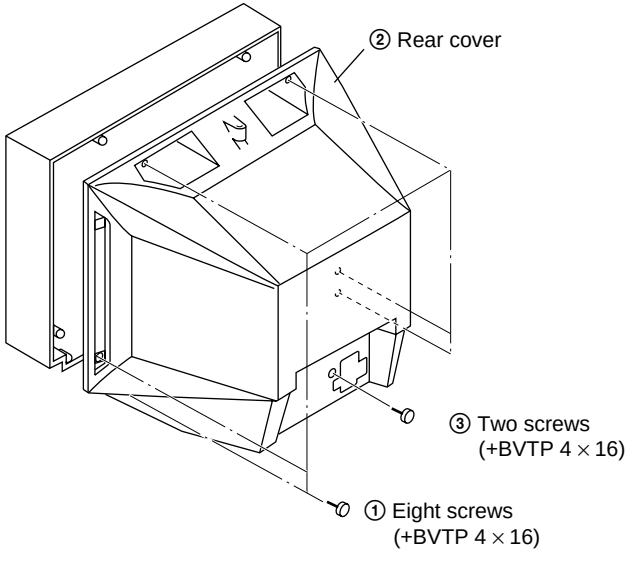
1 ⏻ (power) button (10)
2 ▭ (TV) button (11)
3 Number buttons (10)
4 JUMP button (11)
5 PROGR +/– buttons (10)
6 SELECT button (8)
7 PIC MODE button (13)
8 + or – buttons (7)
9 (display) button (11)
10 (muting) button (11)
11 (video) button (11)
12 +/– (volume) buttons (10)
13 A/B button
(not used for KV-1499M70/1499M7J/1499XF)
14 Timer setting buttons (12)
(wake up timer)
(sleep timer)
15 FAVORITE button
(not used for KV-1499M70/1499M7J/1499XF)
16 SOUND MODE button (13)
17 Teletext operation buttons
(not used for KV-1499M70/1499M7J/1499XF)
(text) (enlarge)
(reveal) (hold)
(index) ⊠ (text clear)
■ (FASTEXT: red, green, yellow, blue)

Names/symbols of buttons on the remote are indicated in different colors to represent the available functions.

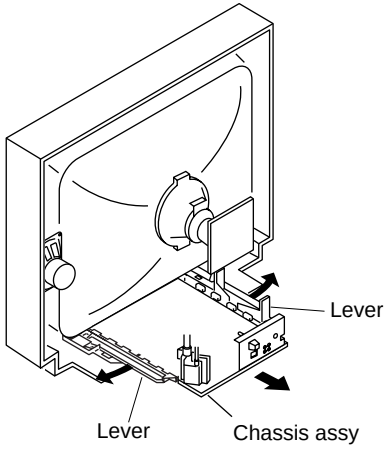
Label color	Button function
White	For general TV operations
Green	For Teletext operations

SECTION 2
DISASSEMBLY

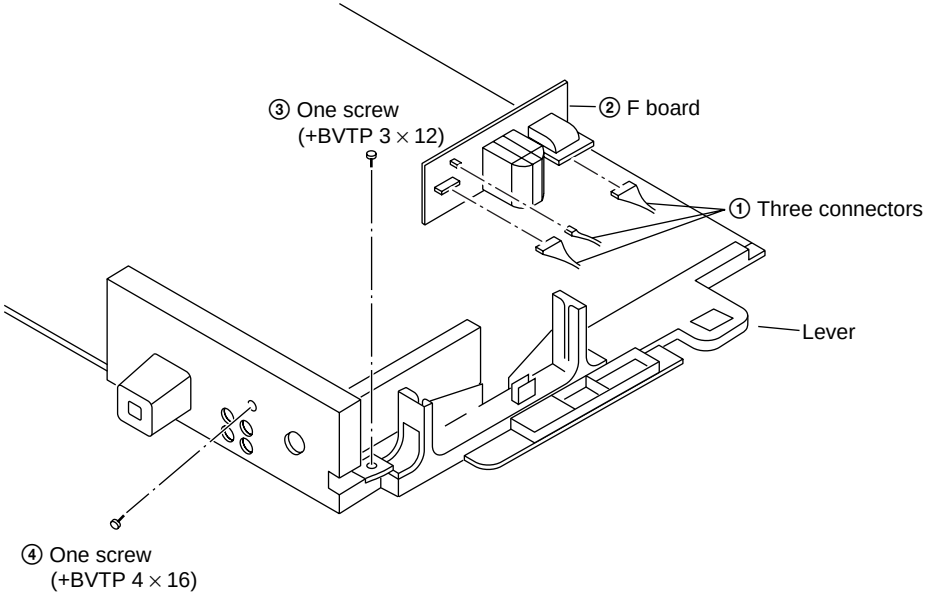
2-1. REAR COVER REMOVAL



2-2. CHASSIS ASSY REMOVAL

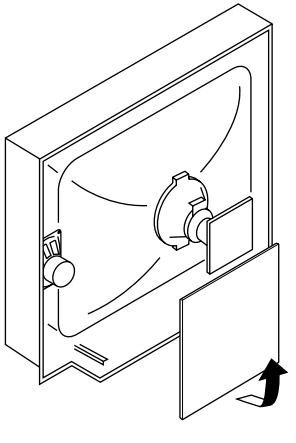


2-3. F BRACKET REMOVAL



2-4. SERVICE POSITION

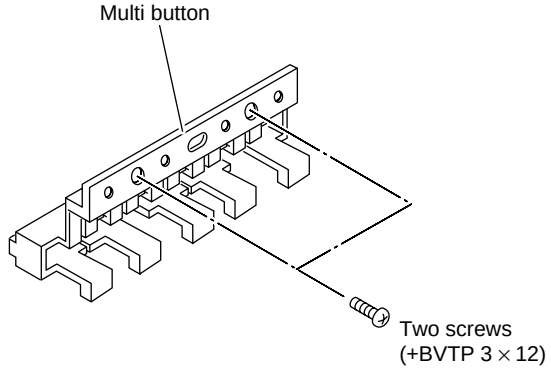
(Note: Remove F Bracket first.)



2-5. REPLACEMENT OF PARTS

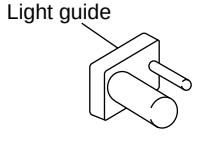
For replacement of the Multi Button, unscrew it, and exchange with the new part.

2-5-1. REPLACEMENT OF MULTI BUTTON

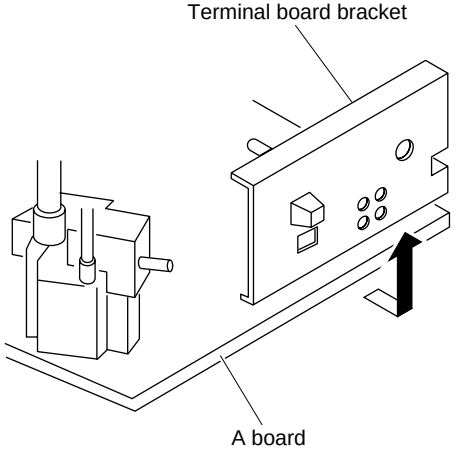


2-5-2. REPLACEMENT OF LIGHT GUIDE

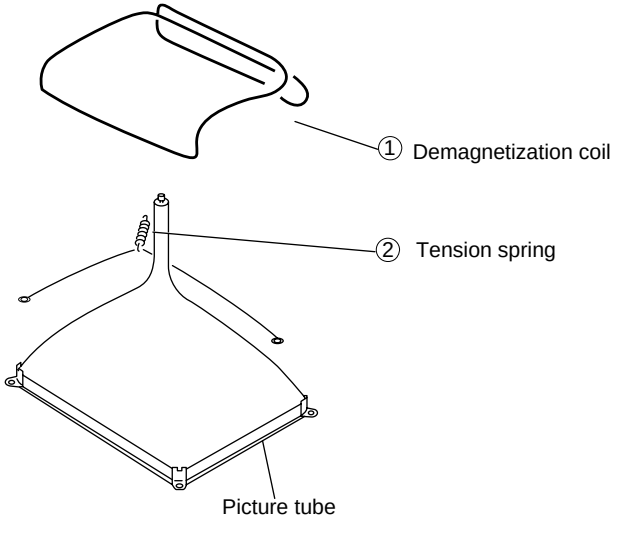
For replacement of the Light Guide, unscrew it and exchange with the new part.



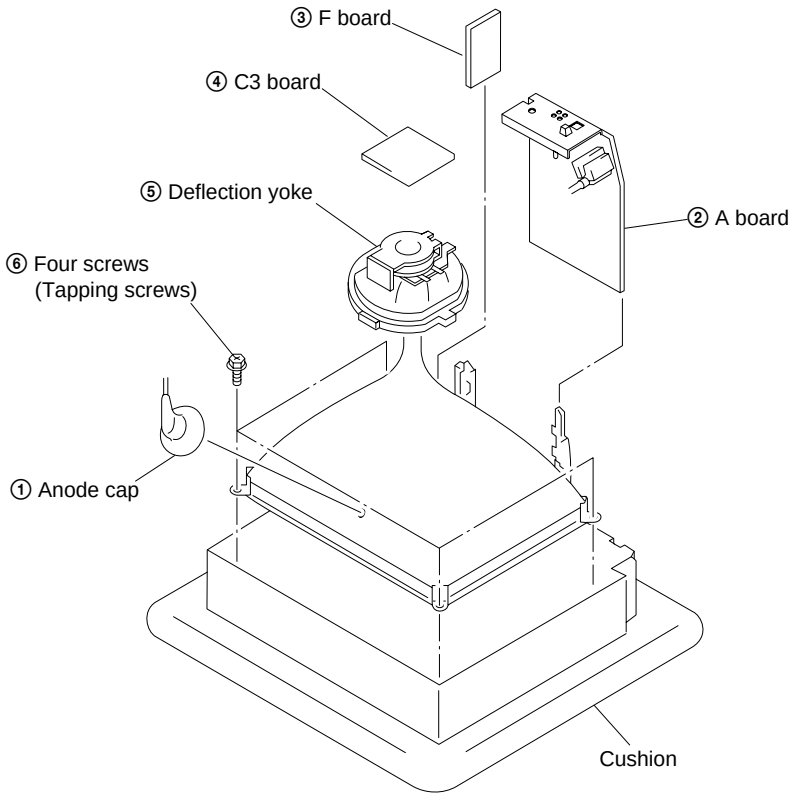
2-6. TERMINAL BRACKET REMOVAL



2-7. DEGAUSS COIL REMOVAL



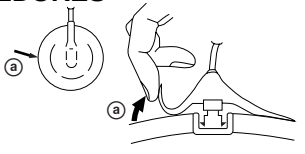
2-8. PICTURE TUBE REMOVAL



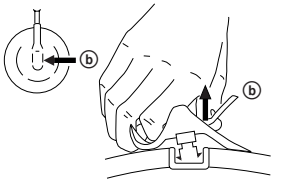
• REMOVAL OF ANODE-CAP

NOTE : After removing the anode, short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield or carbon paint on the CRT.

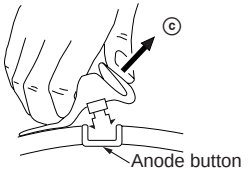
• REMOVING PROCEDURES



① Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ.



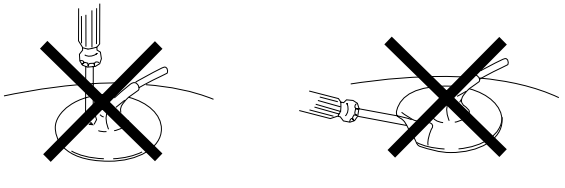
② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ.



③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling it up in the direction of the arrow ⓒ.

• HOW TO HANDLE AN ANODE-CAP

① Do not damage the surface of anode-caps with sharp shaped objects.
② Do not press the rubber too hard so as not to damage the inside of anode-cap. A metal fitting called the shatter-hook terminal is built into the rubber.
③ Do not turn the foot of rubber over too hard. The shatter-hook terminal will stick out or damage the rubber.



SECTION 3
SET-UP ADJUSTMENTS

- The following adjustments should be made when a complete realignment is required or a new picture tube is installed.
- These adjustments should be performed with rated power supply voltage unless otherwise noted.

Controls and switches should be set as follows unless otherwise noted:
PICTURE control ..... normal
BRIGHTNESS control ..... normal

Perform the adjustments in the following order :

1. Beam Landing
2. Convergence
3. Focus
4. White Balance

Note : Test Equipment Required.

1. Color-bar/Pattern Generator
2. Degausser
3. Oscilloscope

Preparation :

- In order to reduce the influence of geomagnetism on the set's picture tube, face it east or west.
- Switch on the set's power and degauss with the degausser.

3-1. BEAM LANDING

1. Input a white signal with the pattern generator.
   Contrast } normal
   Brightness }
2. Set the pattern generator raster signal to a green raster.
3. Move the deflection yoke to the rear and adjust with the purity control so that the green is at the center and the blue and the red take up equally sized areas on each side.
   (See Figures 3-1 through 3-3.)
4. Move the deflection yoke forward and adjust so that the entire screen is green. (See Figure 3-1.)
5. Switch the raster signal to blue, then to red and verify the condition.
6. When the position of the deflection yoke has been decided, fasten the deflection yoke with the screws and DY spacers.
7. If the beam does not land correctly in all the corners, use a magnet to adjust it.
   (See Figure 3-4.)

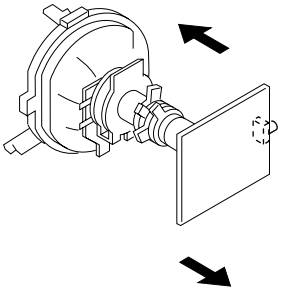


Fig. 3-1

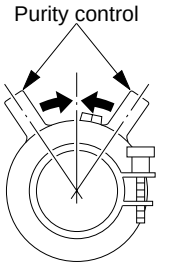


Fig. 3-2

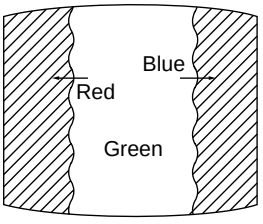


Fig. 3-3

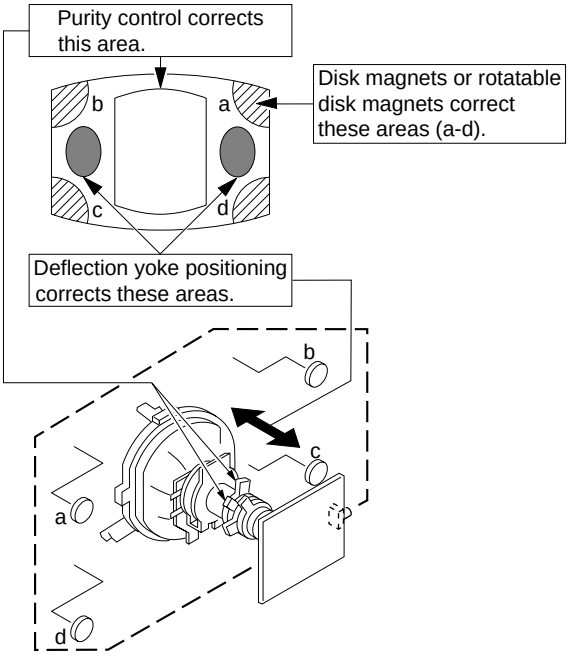


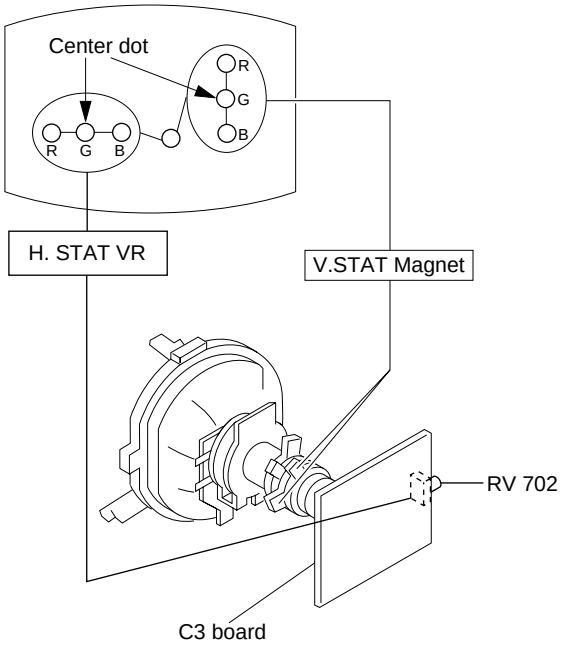
Fig. 3-4

3-2. CONVERGENCE

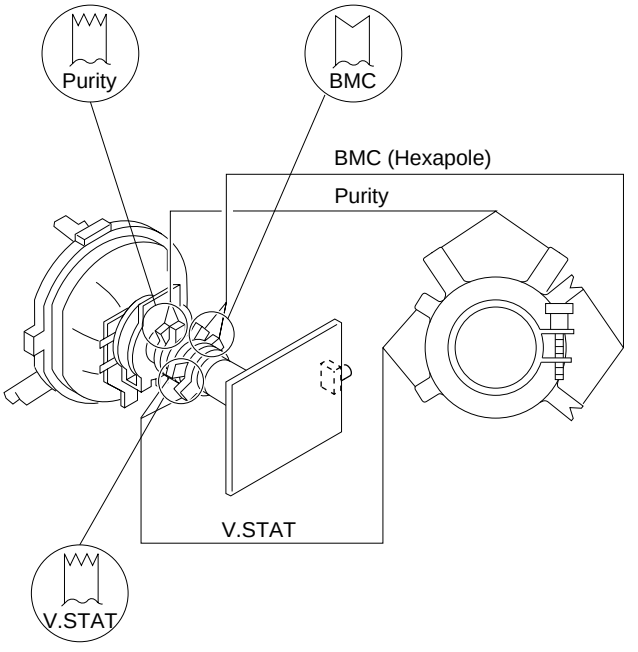
Preparation :

- Before starting this adjustment, adjust the focus, horizontal size and vertical size.
- Minimize the brightness setting.
- Provide dot pattern.

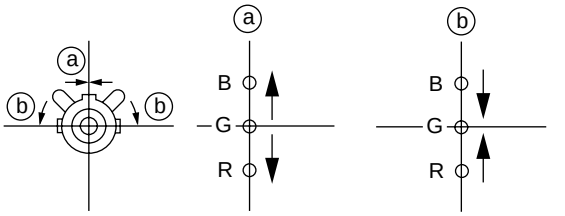
(1) Horizontal and Vertical Static Convergence



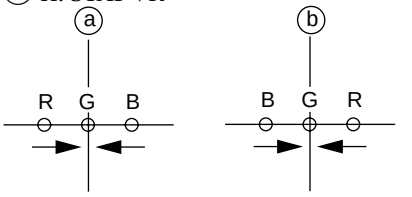
(Moving vertically), adjust the V.STAT magnet so that the red, green and blue dots are on top of each other at the center of the screen.



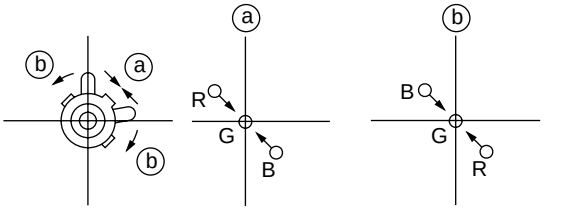
① V. STAT



② H. STAT VR

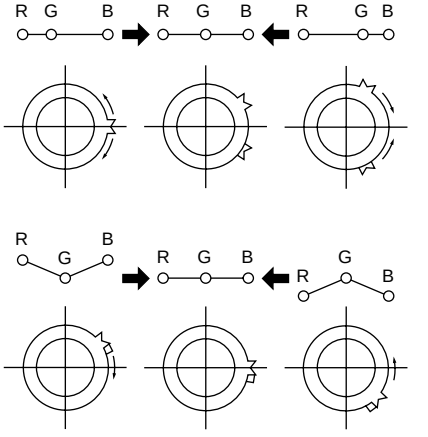


③



④ BMC (Hexapole) Magnet.

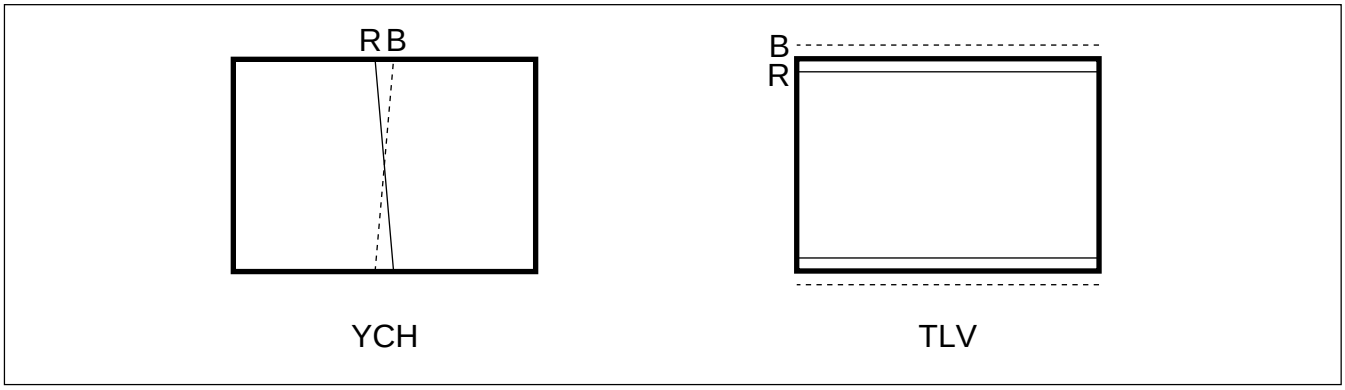
If the red, green and blue dots are not balanced or aligned, then use the BMC magnet to adjust in the manner described below.



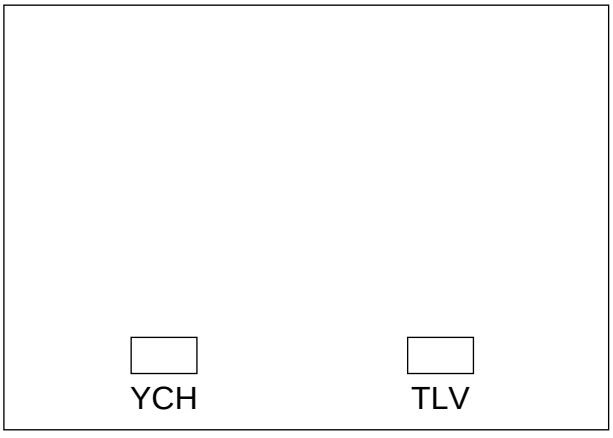
(2) Dynamic Convergence Adjustment

Preparation:

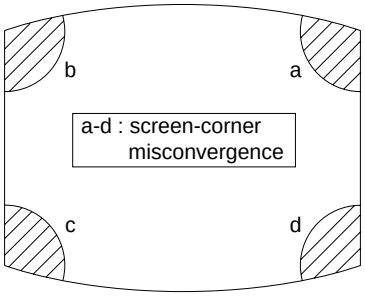
- Before starting this adjustment, adjust the horizontal static convergence and the vertical static convergence

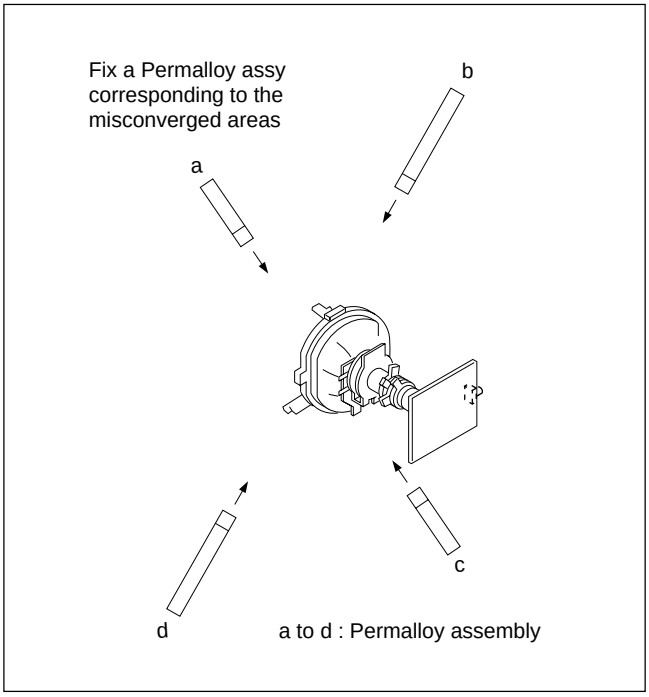


on DY



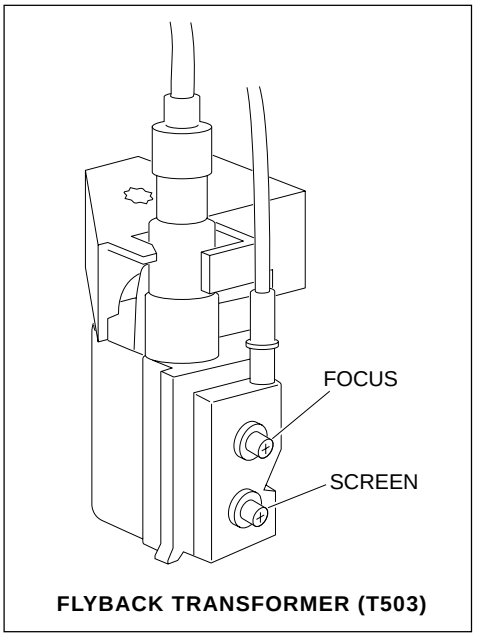
(3) Screen-corner Convergence





3-3. FOCUS ADJUSTMENT

Adjust FOCUS control on the flyback transformer for the best focus.

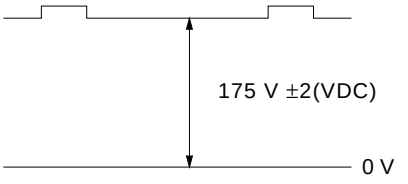


FLYBACK TRANSFORMER (T503)

3-4. G2 (SCREEN) AND WHITE BALANCE ADJUSTMENTS

1. G2 (SCREEN) ADJUSTMENT

1) Set the PICTURE to normal.
2) Put to VIDEO input mode without signals.
3) Connect R, G and B of the C3 board cathode to the oscilloscope.
4) Adjust BRIGHTNESS to obtain the cathode voltage to the value below.
5) Adjust G2 (Screen) on FBT until picture shows the point before cut-off.

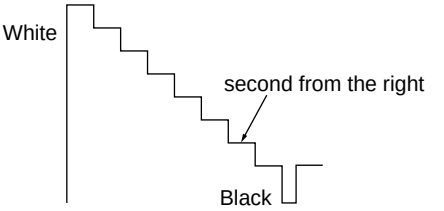


2. WHITE BALANCE ADJUSTMENT

1) Set to Service Mode (Refer Section 4-1: ADJUSTMENTS WITH COMMANDER).
2) Input white raster signal.
3) Set the PICTURE to minimum.
4) Select GCT (WHB 4) and BCT (WHB 5) with [1] and [4], and adjust the level with [3] and [6] for the best white balance.
5) Set the PICTURE to maximum.
6) Select GDR (WHB 1) and BDR (WHB 2) with [1] and [4], and adjust the level with [3] and [6] for the best white balance.
7) Write into the memory by pressing [MUTING] then [0].

3. SUB BRIGHT ADJUSTMENT

1) Set to service mode.
2) Input a staircase signal of black to white from the pattern generator.
3) BRIGHTNESS .... 50%.
   PICTURE ..... MINIMUM
4) Select SBR (WHB7) with [1] and [4], and adjust SBR (WHB7) level with [3] and [6] so that the second stripe from the right is dimly lit.



SECTION 4
CIRCUIT ADJUSTMENTS

4-1. ADJUSTMENTS WITH COMMANDER

Service adjustments are made with the RM-952 that comes with this unit.

a. ENTERING SERVICE MODE

With the unit on standby
↓
[DISPLAY]
↓
[5]
↓
[VOL (+)]
↓
[POWER]

This operation sequence puts the unit into service mode.

b. METHOD OF CANCELLATION FROM SERVICE MODE

Set the standby condition (Press [POWER] button on the commander), then press [POWER] button again, hereupon it becomes TV mode.

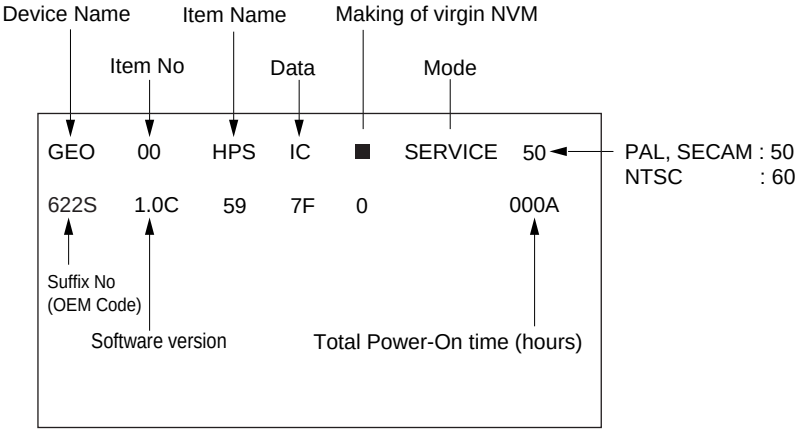
c. METHOD OF WRITE INTO MEMORY

1) Set to Service Mode.
2) Press [1] (UP) and [4] (DOWN), select an item of adjustment.
3) Press [MUTING] button and it will indicate WRITE on the screen.
4) Press [0] button to write into memory.

d. MEMORY WRITE CONFIRMATION METHOD

1) After adjustment, pull out the plug from AC outlet, and then plug into AC outlet again.
2) Turn the power switch ON and set to Service Mode.
3) Call the adjusted items again to confirm adjustments were made.

The screen display is :



[1], [4]	Select the adjustment item.
↓	
[3], [6]	Raise/lower the data value.
↓	
[MUTING]	Writes.
↓	
[0]	Executes the writing.

[7], [0]	All the data becomes the values in memory.
[8], [0]	All user control goes to the standard state.
[5], [0]	Service data initialization (Be sure not to use usually.)
[2], [0]	Write 50Hz adjustment data to 60Hz, or vice versa.

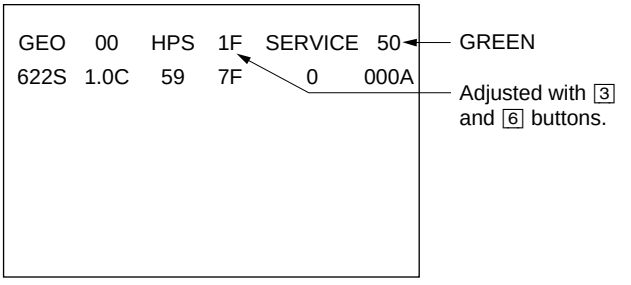
RM-952

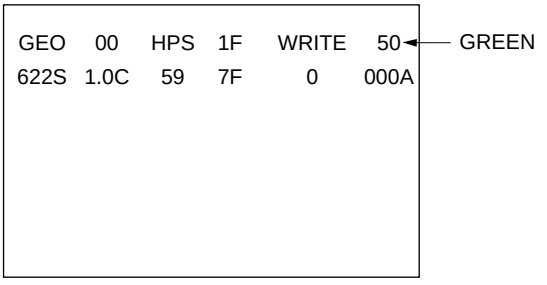
4-2. ADJUSTMENT METHOD

Item Number 00 of device GEO

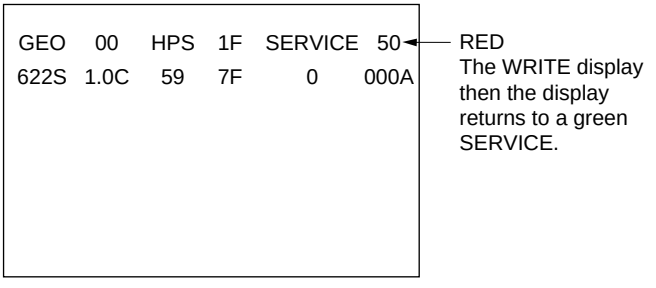
This explanation uses H-Position as an example.

1. Select “GEO 00 HPS” with the [1] and [4] buttons.
2. Raise/lower the data with the [3] and [6] buttons.
3. Select the optimum state. (The standard is 1F for PAL reception.)
4. Write with the [MUTING] button. (The display changes to WRITE.)
5. Execute the writing with the [0] button. (The WRITE display will be changed to red color while excuting, and back to SERVICE.)





Written with [MUTING]



Write executed with [0]

Use the same method for all Items. Use [1] and [4] to select the adjustment item, use [3] and [6] to adjust, write with [MUTING], then execute the write with [0].

Note : 1. In [WRITE], the data for all items are written into memory together.

2. For adjustment items that have different standard data between 50Hz or 60Hz, be sure to use the respective input signal after adjustment.

Adjustment Item Table

Device Name	Functionality No	Functionality Name	Note	Data Range	Function	Note for Different Data	Register No. (bit)	Slava Address	RAM Address (bit)
GEO	0	HPS	7	3F	H Position	50/60HZ	12 (7-2)	CXA2130S(88H)	82 (7-2)
	1	HSZ	1F	3F	H Size	50/60HZ	11 (7-2)		81 (7-2)
	2	PAP	1F	3F	Pin Amp	50/60HZ	13 (7-2)		83 (7-2)
	3	TLT	7	0F	Trapezium	50/60HZ	15 (7-4)		85 (7-4)
	4	VPS	1F	3F	V Position	50/60HZ	0F (7-2)		7F (7-2)
	5	VSZ	1F	3F	V Size	50/60HZ	0E (7-2)		7E (7-2)
	6	SCO	7	0F	S Correction	50/60HZ	10 (7-4)		80 (7-4)
	7	VLN	7	0F	V Linearity	50/60HZ	10 (3-0)		80 (3-0)
	8	BOW	7	0F	AFC Bow	50/60HZ	16 (7-4)		86 (7-4)
	9	AGL	7	0F	AFC-Angle	50/60HZ	16 (3-0)		86 (3-0)
	10	UPN	1F	3F	Upper Pin	50/60HZ	14 (7-2)		84 (7-2)
	11	VOK	1	3F	Lower Pin	50/60HZ	18 (7-2)		88 (7-2)
	12	HBL	0	1	H Blanking on/off		18 (1)		67 (1)
	13	LBL	7	0F	Left H Blanking	50/60HZ	17 (7-4)		87 (7-4)
	14	RBL	7	0F	Right H Blanking	50/60HZ	17 (3-0)		87 (3-0)
WHB	0	RDR	2A	3F	R Drive	DYNAMIC/others	09 (7-2)	CXA2130S(88H)	8F (7-2)
	1	GDR	2A	3F	G Drive	DYNAMIC/others	0A (7-2)		90 (7-2)
	2	BDR	2A	3F	B Drive	DYNAMIC/others	0B (7-2)		91 (7-2)
	3	RCT	7	0F	R Cutoff	SECAM/others	07 (3-0)		93 (3-0)
	4	GCT	7	0F	G Cutoff	SECAM/others	08 (7-4)		94 (7-4)
	5	BCT	7	0F	B Cutoff	SECAM/others	08 (3-0)		94 (3-0)
	6	BMN	15	1F	Brightness Minimum Data				97
	7	SBR	28	3F	Sub Brightness Control				98
SAJ	0	PMX	33	3F	Picture Maximum Data			CXA2130S(88H)	96
	1	SHU	8	0F	Sub Hue Control	TV/Video			99
	2	SSH	3	0F	Sub Sharpness Control	TV/Video			9A
	3	SCL	1F	3F	Sub Color Control	NTSC/others			9B
VP	0	EHT	4	0F	EHT Comp	50/60HZ	15 (3-0)	CXA2130S(88H)	85 (3-0)
	1	GMA	2	03	Gamma Correction Refer NVM Map A4		0B (1-0)		1A3 (1-0)
	2	YDL	6	0F	Y Delay	PAL/SECAM/NTSC	0C (3-0)		8C (3-0)
	3	SST	1	03	SECAM ID Start Position		1B (1-0)		6A (1-0)
	4	SSP	1	03	SECAM ID Stop Position		1B (3-2)		6A (3-2)
	5	SLV	2	03	SECAM ID Level		1C (1-0)		6B (1-0)
	6	SBF	22	3F	SECAM BELL fO		1C (7-2)		6B (7-2)
	7	DYC	0	1	Dynamic Color on/off		0A (1)		59 (1)
	8	ABL	1	1	ABL Mode Switching STANDARD ALWAYS 0		09 (1)		58 (1)
	9	VTH	1	1	ABL Detection Vth Switching		09 (0)		58 (0)
	10	SFO	1	1	FO Switching for Sharpness	NTSC/others	05 (1)		198 (1)
	11	DCX	1	1	DC Trans. Ratio Switching		06 (1)		55 (1)
	12	SHT	1	1	Pre-/Overshoot ratio Switch	NTSC/others	06 (0)		199 (0)

Adjustment Item Table

Device Name	Functionality No	Functionality Name	Note	Data Range	Function	Note for Different Data	Register No. (bit)	Slava Address	RAM Address (bit)
VP	13	HDW	0	1	H Drive Pulse Width Switch		00 (6)		4F (6)
	14	AFC	1	03	AFC Gain Control	TV/Video/Text	0F (1-0)		8D (1-0)
	15	HOS	7	0F	H Oscillation		0C (7-4)		5B (7-4)
	16	HSS	0	1	Slice Level of H Sync Sep.		0D (1)		5C (1)
	17	VSS	0	1	Slice Level of V Sync Sep.		0D (0)		5C (0)
	18	HMS	0	1	Macro Vision C/m off/on	50/60Hz	0E (0)		7E (0)
	19	YUV	0	1	YUV Switch Control		01 (0)		50 (0)
	20	CDV	1	3	CD mode for Video	Video only	0D (5-4)		1A1 (5-4)
	21	RON	1	1	R ON	not memorized	01 (3)		50 (3)
	22	GON	1	1	G ON	not memorized	01 (2)		50 (2)
	23	BON	1	1	B ON	not memorized	01 (1)		50 (1)
	24	PON	1	1	P ON	not memorized	00 (7)		4F (7)
	25	BLK	0	1	BLK Off		12 (0)		61 (0)
	26	VMC	0	1	VM Off		13 (0)		62 (0)
AP	0	INF	0	3F	Input Attenuation When surround off		00 (5-0)	TDA7429	19F (5-0)
	1	INS	0	3F	Input Attenuation When surround on				1A0 (5-0)
	2	PH1	0	3	Phase 1 Register Selection		02		76 (1-0)
	3	PH2	0	3	Phase 2 Register Selection				76 (3-2)
	4	PH3	0	3	Phase 3 Register Selection				76 (5-4)
	5	PH4	0	3	Phase 4 Register Selection				76 (7-6)
	6	BCS	2	3	Bass Center Shift		#4 (3-0)		1A8 (1-0)
	7	TCS	2	3	Treble Center Shift		#5 (3-0)		1A9 (1-0)
	8	TRF	2	3	RF Treble Offset		#5 (3-0)		1A9 (5-4)
MSP	0	WST	15	FF	W/G Stereo Threshold			MSP3415D(84H)	157 (7-0)
	1	WBT	EA	FF	W/G Bilingual Threshold				158 (7-0)
	2	WLL	5	FF	W/G Monaural Threshold				159 (7-0)
	3	WAC	0	0F	W/G Agreement Count				15A (3-0)
	4	WDL	30	FF	W/G Search Delay				15B (7-0)
	5	NDL	20	FF	NICAM Search Delay				15C (7-0)
	6	SDL	10	FF	Stereo status Read Delay				15D (7-0)
	7	AGC	1	1	AGC Switch Auto/Constant		BB (7)		108 (7)
	8	REL	28	3F	AGC Gain at Constant Mode		BB (6-1)		108 (6-1)
	9	CRM	0	1	Carrier muting on/off		BB (9)		107 (1)
	10	ACO	1	1	Audio Clock out on/off		83 (5)		10C (5)
	11	FP	1B	7F	FM Prescale for non-M system		0E (7-0)		16C (6-0)
	12	FPM	32	7F	FM Prescale for M system		0E (7-0)		16D (6-0)
	13	FH	36	7F	FM Prescale for HDEV		0E (7-0)		16E (6-0)
	14	FHM	65	7F	FM Prescale for HDEV and M		0E (7-0)		16F (6-0)
	15	WGP	2A	7F	W/G Prescale		0E (7-0)		170 (6-0)
	16	NIP	6D	7F	NICAM Prescale		10 (7-0)		138 (6-0)
	17	ERR	50	FF	Auto FM switch Threshold		21 (10-3)		166 (7-0)
	18	VOL	6D	FF	Loud Speaker gain 7000h to 7ffoh		0000 (15-4)		1A7 (7-0)

Adjustment Item Table

Device Name	Functionality No	Functionality Name	Note	Data Range	Function	Note for Different Data	Register No. (bit)	Slava Address	RAM Address (bit)
TXT	0	TXH	1	3	Teletext Horizontal Position			(58H)	18D (1-0)
	1	TXV	0	3	Teletext Vertical Position				18D (6-4)
OPM	0	OSH	0A	3F	OSD H Position	Option-Misc			AC (7-2)
	1	COM	0	03	Comb Selection				A5 (7-6)
	2	APC	1	1	APC Switch				A4 (5)
	3	TSY	0	03	TV Sys at Auto TV Sys				A4 (4-3)
	4	MUT	0	1	No Signal Mute				A4 (0)
	5	AFM	0	1	Auto FM switch				A4 (1)
	6	RFB	0	3	C-BPF Control				A5 (5-4)
	7	TV0	0	7	Tilt to V-Angle offset				A5 (2-0)
	8	DBL	0	1	Disable Blueback Function				A4 (2)
OPB	0	OP1	FF	FF	Optional Bits 1 (see below)	Option-Bits			45
	1	OP2	2	FF	Optional Bits 2 (see below)				46
	2	OP3	4	FF	Optional Bits 3 (see below)				47

NOTE

- shaded items are fixed data.
- Standard data listed on the Adjustment Item Table are reference values, therefore it may be different for each model and for each mode.
- Note for Different Data Those are the standard data values written on the microprocessor. Therefore, the data values of the modes and stored respectively in the memory.
  In case of a device replacement, adjustment by rewriting the data value is necessary for some items.

ITEM INFORMATION.

No. OPB0 OP1

Item	XTAL 4.43	XTAL 3.58	SECAM	2nd. Lang	B/G	I	D/K	M
KV-1499M7J	1	1	1	1	1	1	1	1

No. OPB1 OP2

Item	TOP	NICAM	HDEV	Thai Bil	Dis Fav.	DVD Input	AV Input	
KV-1499M7J	0	0	0	0	0	0	1	0

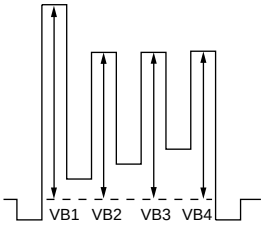
No. OPB2 OP3

Item	Pic Rot	2199 Cune	Auto PIC	Auto TV sys	US ST	AV Mono	11 KEY	Color SW
KV-1499M7J	0	0	0	0	0	1	0	0

4-3. PICTURE QUALITY ADJUSTMENTS

SUB COLOR ADJUSTMENT

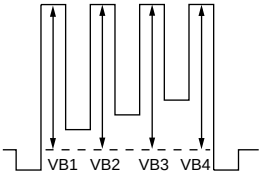
1. Input a PAL color-bar.
2. Set to the following condition:
   PICTURE 100%, BRIGHTNESS 50%, COLOR 50%
3. Connect an oscilloscope to pin ① (B OUT) of CN305, A board.
4. Set to Service Mode and select SAJ 3 'SCL' with [1] and [4] of the commander then adjust to VB2=VB3=VB4 with [3] and [6].
5. Press [MUTING] → [0] of the commander to write the data.
6. Adjust SAJ 3 'SCL' as step 2 to 5 when receiving NTSC color-bar.



VB2 = VB3 = VB4

SUB HUE ADJUSTMENT

1. Select Video 1.
2. Input a NTSC color-bar, video into Video 1.
3. Set the following condition:
   PICTURE 100%, BRIGHTNESS 50%, COLOR 50%
4. Connect an oscilloscope to pin ① (B OUT) of CN305, A board.
5. Select SAJ 1 'SHU' with [1] and [4] of the commander by setting to Service Mode and adjust to VB1=VB2=VB3=VB4 with [3] and [6].

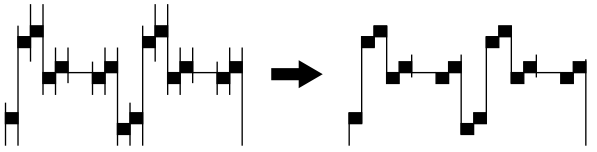


VB1 = VB2 = VB3 = VB4

6. Press [MUTING] → [0] of the commander to write the data.

BELL FILTER ADJUSTMENT

1. Input SECAM color-bar signal.
2. Connect the dual-trace oscilloscope to the pin ⑨ (R-Y) of CN303 (not mounted).
3. Adjust SERVICE MODE, ITEMS 'SBF' as shown below.



4-4. A BOARD ADJUSTMENT AFTER IC003 (MEMORY) REPLACEMENT

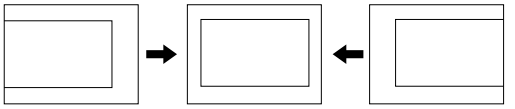
When replacing IC003 (MEMORY), be sure to change IC001 (µ-COM) to the following new IC at the same time.
IC001(µ-CON) : CXP86449-622S

1. Enter to Service Mode.
2. Press commander buttons [5] and [0] (Data Initialize), and [2] and [0] (Data Copy) to initialize the data.
3. Call each item number and check if the respective screen shows the normal picture.
   In cases where items are not well adjusted, rectify the items with fine adjustment.
   Write the data per each item number ([MUTING]+[0]).
4. Select item numbers "OPB0" (OP1), "OPB1" (OP2) and "OPB2" (OP3) and respectively set the bit per model with command buttons [3] and [6].
5. Press commander buttons [8] and [0] (Test Normal) to return to the data that was set on the shipment from the factory.
   (This will also cancel Service Mode.)

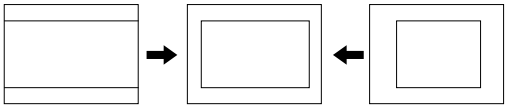
4-5. PICTURE DISTORTION ADJUSTMENT

Item Number 00 – 0B

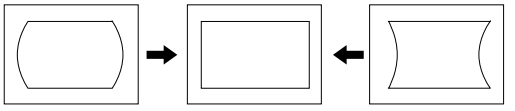
GEO 0 HSH (H POSITION)



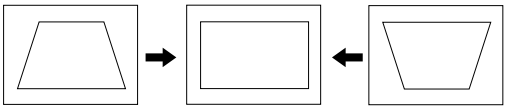
GEO 1 HSZ (H SIZE)



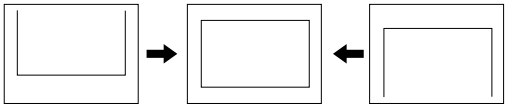
GEO 2 PAP (PIN AMP)



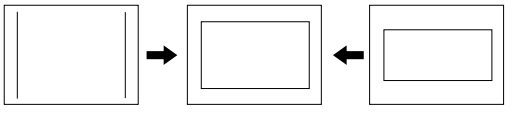
GEO 3 TILT (TRAPEZIUM)



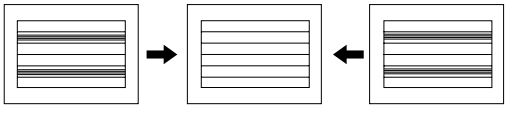
GEO 4 VSH (V POSITION)



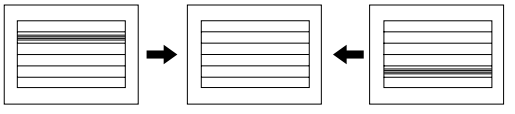
GEO 5 VSZ (V SIZE)



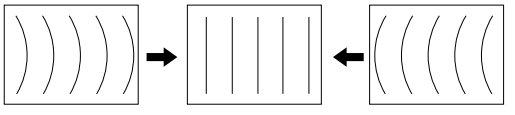
GEO 6 SCR (VERTICAL S-Correction)



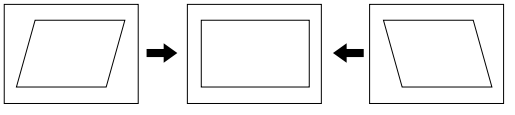
GEO 7 VLN (V LINEARITY)



GEO 8 VBOW (AFC.BOW)

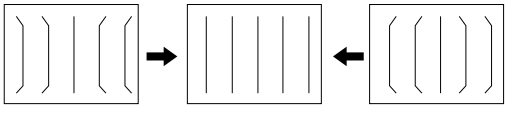


GEO 9 AGL (AFC.ANGLE)



GEO 0A UCP (UPPER CORNER PIN)

GEO 0B LCP (LOWER CORNER PIN)



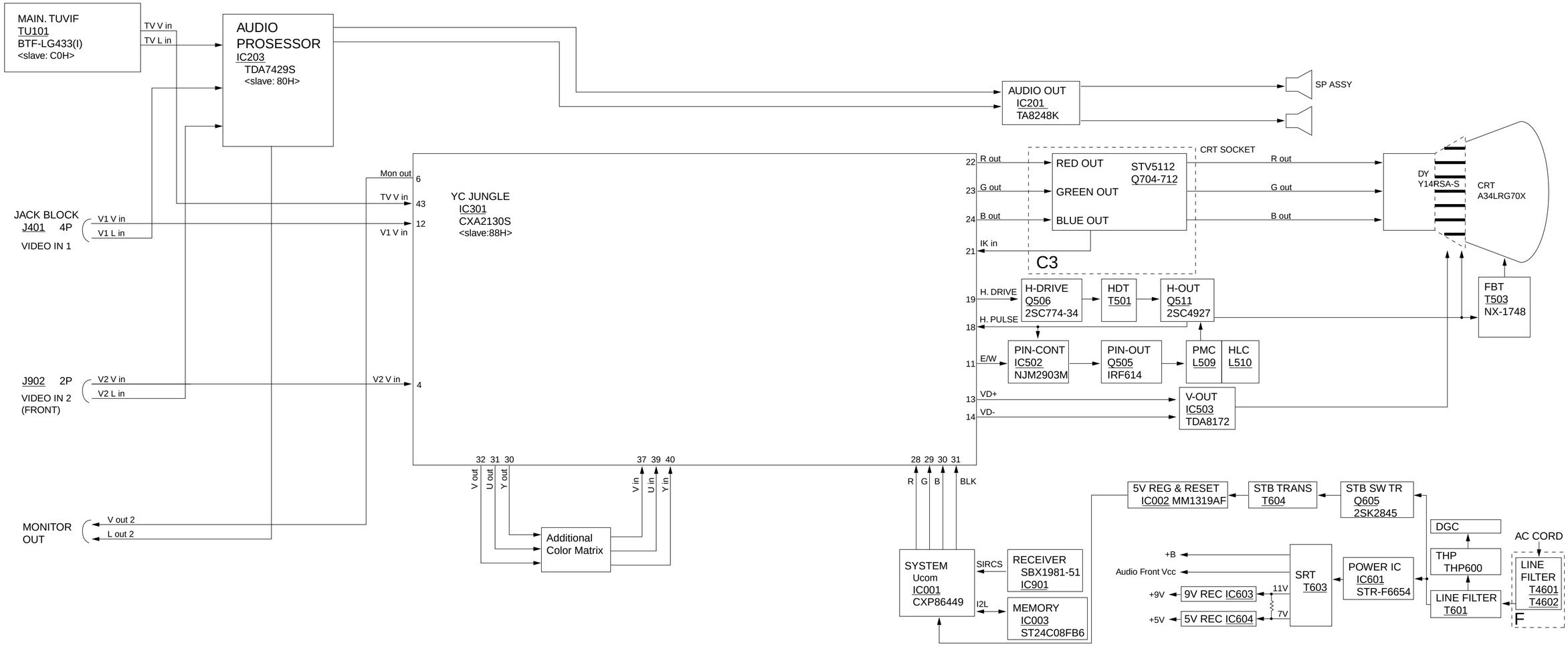
MEMO

MEMO

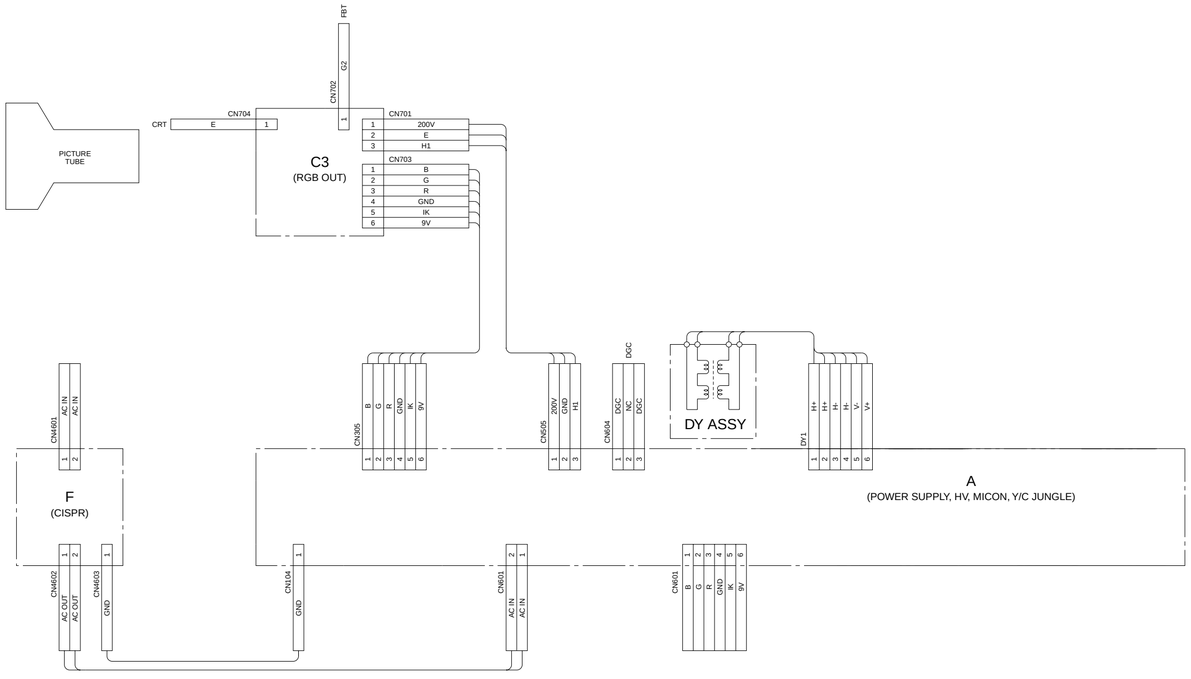
KV-1499M7J
RM-952
KV-1499M7J
RM-952

SECTION 5
DIAGRAM

5-1. BLOCK DIAGRAM



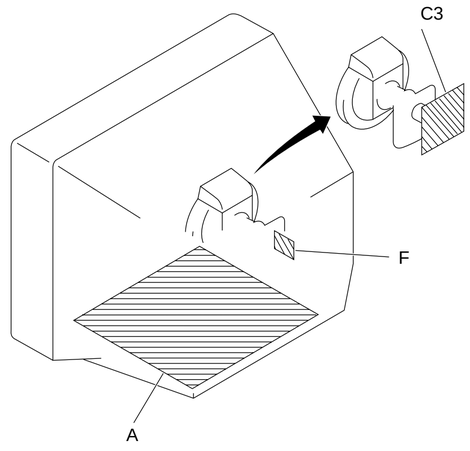
5-2. FRAME SCHEMATIC DIAGRAM



KV-1499M7J
RM-952

KV-1499M7J
RM-952

5-3. CIRCUIT BOARDS LOCATION



5-4. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

Note:

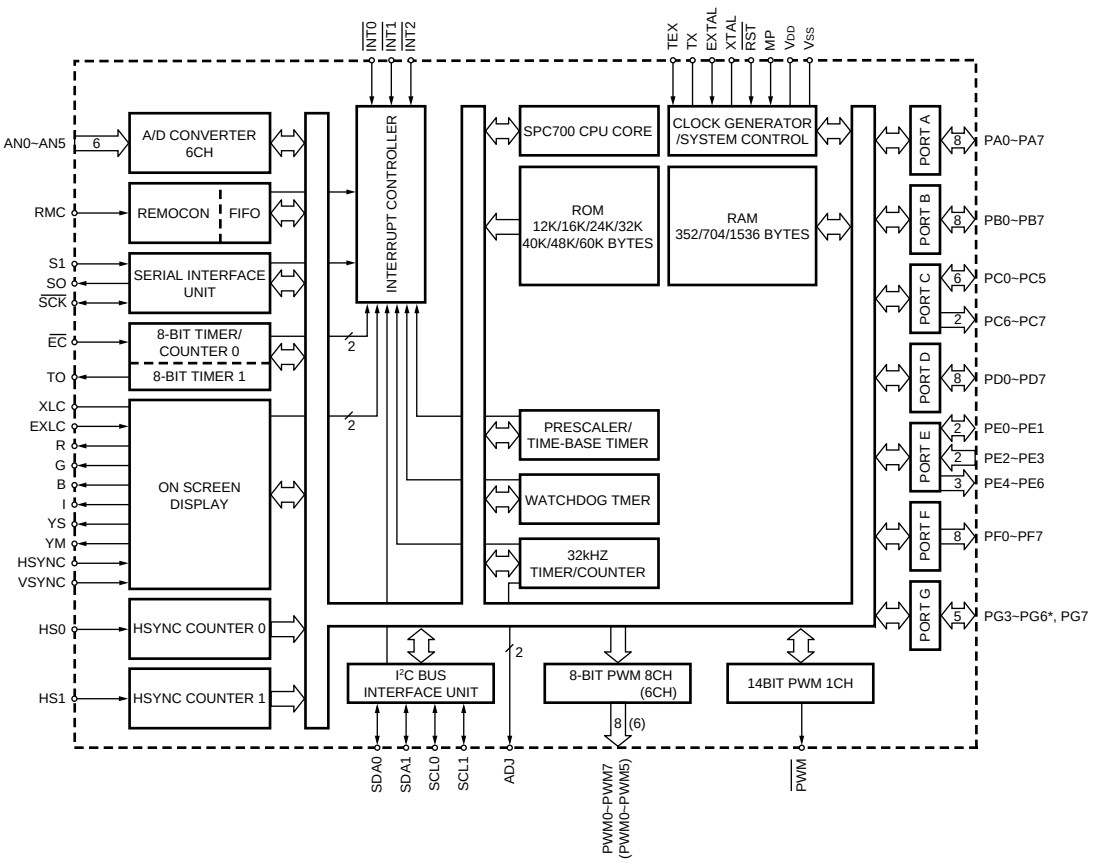
- All capacitors are in μF unless otherwise noted.
- All electrolytic capacitors are rated at 50V unless otherwise noted.
- All resistors are in ohms.
  kΩ = 1000Ω, MΩ = 1000kΩ
- Indication of resistance which does not have rating electrical power is as follows.
  Pitch: 5 mm
  Rating electrical power 1/4W (CHIP: 1/10W)
- : nonflammable resistor.
- △: internal component.
- : panel designation or adjustment for repair.
- All variable and adjustable resistors have characteristic curve B unless otherwise noted.
- **Readings are taken with a color-bar signal input.**
  no mark : PAL
  ( ) : SECAM
  [ ] : NTSC 3.58
  « » : NTSC 4.43
- **Readings are taken with a 10 MΩ digital multimeter.**
- **Voltage are dc with respect to ground unless otherwise noted.**
- **Voltage variations may be noted due to normal production tolerances.**
- **All voltages are in V.**
- *** : Cannot be measured.**
- **Circled numbers are waveform references.**
- **: B + bus.**
- **: B – bus.**
- **: signal path.**

Reference information

RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFLAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RS	NONFLAMMABLE METAL OXIDE
	: RB	NONFLAMMABLE CEMENT
	: RW	NONFLAMMABLE WIREWOUND
	: ※	ADJUSTMENT RESISTOR
COIL	: LF-8L	MICRO INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

Note: The component identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

A BOARD IC001 CXP86449-622S



(1) Schematic Diagram of A1/2 board

A14 (1/2)
(POWER SUPPLY,HV, MICON,Y/C JUNGLE)
TO SPEAKER
CN901 4P WHT :S-MICRO
IC201 TA8248K AUDIO AMP
IC001 CXP86449-614S CONTROLLER
IC003 M24C08-BN6 NVM
IC301 CXA2139S Y/C JUNGLE
IC203 TDA7429S AUDIO SW PROCESSOR
IC204 AMP
IC901 SBX1981-51 REMOTE SENSOR IR-DET
IC002 MM1319AF
TU101 BTF-LG411
Q101 2SC2712 BUFFER
Q201 UN2216 SWITCH-MUTE
Q202 UN2216 MUTE SW
Q203 UN2213 VCC SWITCH
Q204 2SA1162 VCC RECTIFIER
Q205 UN2213 MUTE
Q206 UN2213 MUTE
Q207 UN2213 MUTE
Q301 2SA1162 VCC FALL DETECTOR
Q302 2SC2712 MATRIX
Q303 2SA1162 MATRIX
Q307 2SC2712 HP OUT
Q308 2SA1162 HP OUT
Q313 2SC2712 BUFFER
Q315 UN2213 SWITCHING
Q401 UN2216 MUTE-SW
Q402 MUTE-SW
Q403 DRIVER
Q404 2SA1162 DRIVER
Q901 UN2213 LED DRIVE
Q902 UN2213 LED DRIVE
Q003 UN2111 SWITCH
Q004 UN2211 SWITCH
Q002 2SC2712 BUFFER
D203 DA204K GND-GND DIODE
D906 SPB-26MVWF
TO A BOARD CN203
TO A BOARD CN204
TO C3 BOARD CN703
CN103 9V ATT.SW GND
CN202 4P WHT GND B-INT SDA SCL
J401 4P JACK
AUDIO IN 1R
MONITOR OUT
AUDIO IN 2R
AUDIO R
AUDIO IN 1L (MONO)
AUDIO IN 2L (MONO)
AUDIO L (MONO)
VIDEO IN 1
VIDEO IN 2
VIDEO
B-SSS10306-ME.-A..1499M7J

(2) Schematic Diagram of A2/2 board

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
A B C D E F G H I J
D631 ERC04-06SE RECT
D632 ERC04-06SE RECT
D633 ERA22-08TP3 SNUBBER
T604 STB
D635 MA111-TX SENSING
D634 MA111-TX SENSING
D636 D1NS4-TA2 RECT
STBY 7V
D623 UDZ-TE-17-15B CLAMP
D624 MA111-TX PROTECT
D637 RD6.8ES-T1B1 CLAMP
D638 D1N20R-TR RECT
Q605 2SK2845 SWITCHING
Q606 2SC2712 SWITCHING
Q608 2SC2712 SWITCH
D625 RD10SB-T1 CLAMP
D620 RD30ES-T1B2 PROTECT
Q604 2SA1091R
Q607 2SD2144S RELAY DRIVE
ST-BY
PFC
CN600
D602 1SS119 PROTECT
RY601 DH5D1-0(M)
T601 LFT
VDR600
T600
S600 1-571-433-31
THP600 1-810-961-11
RY600
D600
11V
D605 D4SB60L AC RECT
IC601 STR-F6654 REG-CONTROL
GND VIN D S OCP/FB
SNUBBER
CN603
D609
D601
D610 AK04V0
D611 10ELS2N-TB5 PROTECT
D613 10ELS2N-TB5 RECT
D614 10ELS2N-TB5 RECT
D606
D608
Q601 SWITCH
D603 CLAMP
D607 PROTECT
D604 PROTECT
Q602 PROTECTION
Q603 SWITCH
Q600
PH600 ON3171-R PHOTO COUPLER
IC602 SE-135N SENSOR-AMP
T603 SRT
D628 1SS119 PROTETC
D622
D615 RU-4AM-T3
D612
D627 31DQ06-FC5 RECT
D617
D621 :FPRD
D618 RN-4Z AUDIO RECT
D629
D616 AUDIO RECT
D630
IC603 NJM78M09FA 9V REG
IC604 L7805CV 5V REG
5V
AUD+VCC
AUDI-GND
EW
NS ROT
NS MUTE
HD
VD-
VD+
ABL
AFC
HP
Q503 2SC2712 PROTECT
Q506 2SD774-24 H-DRIVE
D533
T501 HDT
Q511 2SC4927 H-OUT
D517 ERC06-15S DAMPER
D518 RGP15GPKG23 PIN-DANPER
D519
CN501
CN502
D530
RV500
Q501
Q502
IC502 NJM2903M-TE2 PIN-CONTROL
D504 EL1Z PIN-OUT
D531 PROTECTOR
D534
D520
D532 PROTECT
Q505 IRF614 PIN-OUT
IC503 TDA8172 V.OUT
DRV-IN Vcc F.B.-PLS Vee OUT-PUT Vcc(OUT) REF-VOLT
D509 10K :CHIP PROTECT
D510 1SS355TE PROTECTOR
D511 1SS355TE PROTECTOR
D512 1SS355TE PROTECTOR
D506 1SS119 PROTECT
D507 1SS355TE PROTECT
Q509 2SC2712 V-PROTECT
D508 1SS355TE
Q507 2SA1162 PROTECT
D505 1SS355TE PROTECT
D513 GP08DPKG23 V.BOOST
Q512
T504
T505
D527 GP08DPKG23 H-POSI
D528 GP08DPKG23 H-POSI
S501
S502
SG501
D523 EL1Z 200V.RECT
D522 EL1Z +15V.RECT
D521 EL1Z -15V.RECT
T503 NX-1912
HV FV SV ABL -15V E 15V
D525
D526
D529
CN507
VD+ GND VD- 15V NS ROT NS MUTE
TO C BOARD CN1801
DY
H.DY V.DY
DY1 6P WHT :DY
H+ H+ H- H- V- V+
TO DY
200V GND H1 GND
CN505 4P :MINI
TO C3 BOARD CN701
CN508
TO COATING EARTH
CN509
TO HV BLOCK
DF
CN504
GND
CN609
VD+ 15V FBP GND GND NC 135V
CN503
A14 (2/2)
(POWER SUPPLY,HV, MICON,Y/C JUNGLE)
CN606
E
CN601 2P :VH
AC IN AC IN
TO F BOARD CN4602
CN604 3P :MINI
DGC NC DGC
TO DGC
CN602 2P :MINI
DGC CHK DGC CHK
CN605
3D-VCC GND GND 3D+VCC
CN510
NS MUTE GND 7V 11V
B-SSS10306-ME.-A..1499M7J

Schematic diagram
◀ A (1/2) board

Schematic diagram
A (2/2) board ▶

KV-1499M7J
RM-952
KV-1499M7J
RM-952

A BOARD

IC

IC001	B-10
IC002	C-9
IC003	A-9
IC100	B-5
IC201	B-11
IC203	C-3
IC204	B-2
IC301	B-6
IC502	E-6
IC503	J-5
IC601	I-8
IC602	H-6
IC603	D-8
IC604	D-10
IC901	I-13
PH600	H-7

TRANSISTOR

Q001	B-8
Q002	B-8
Q003	C-9
Q004	C-9
Q101	A-4
Q201	A-11
Q202	A-11
Q203	C-11
Q204	C-11
Q205	A-12
Q206	A-11
Q207	A-11
Q301	B-8
Q302	A-6
Q303	A-6
Q304	B-6
Q305	B-5
Q306	B-5
Q307	C-7
Q308	C-7
Q309	C-7
Q310	D-7
Q311	D-9
Q312	B-7
Q313	B-8
Q315	B-5
Q401	D-2
Q402	D-1
Q403	D-2
Q404	C-3
Q501	D-6
Q502	E-7
Q503	F-6
Q505	D-6
Q506	D-2
Q507	H-6
Q509	F-6
Q511	F-1
Q600	C-12
Q601	F-11
Q602	J-7
Q603	I-7
Q604	H-6
Q605	E-12
Q606	F-11
Q607	H-13
Q901	H-13
Q902	H-13

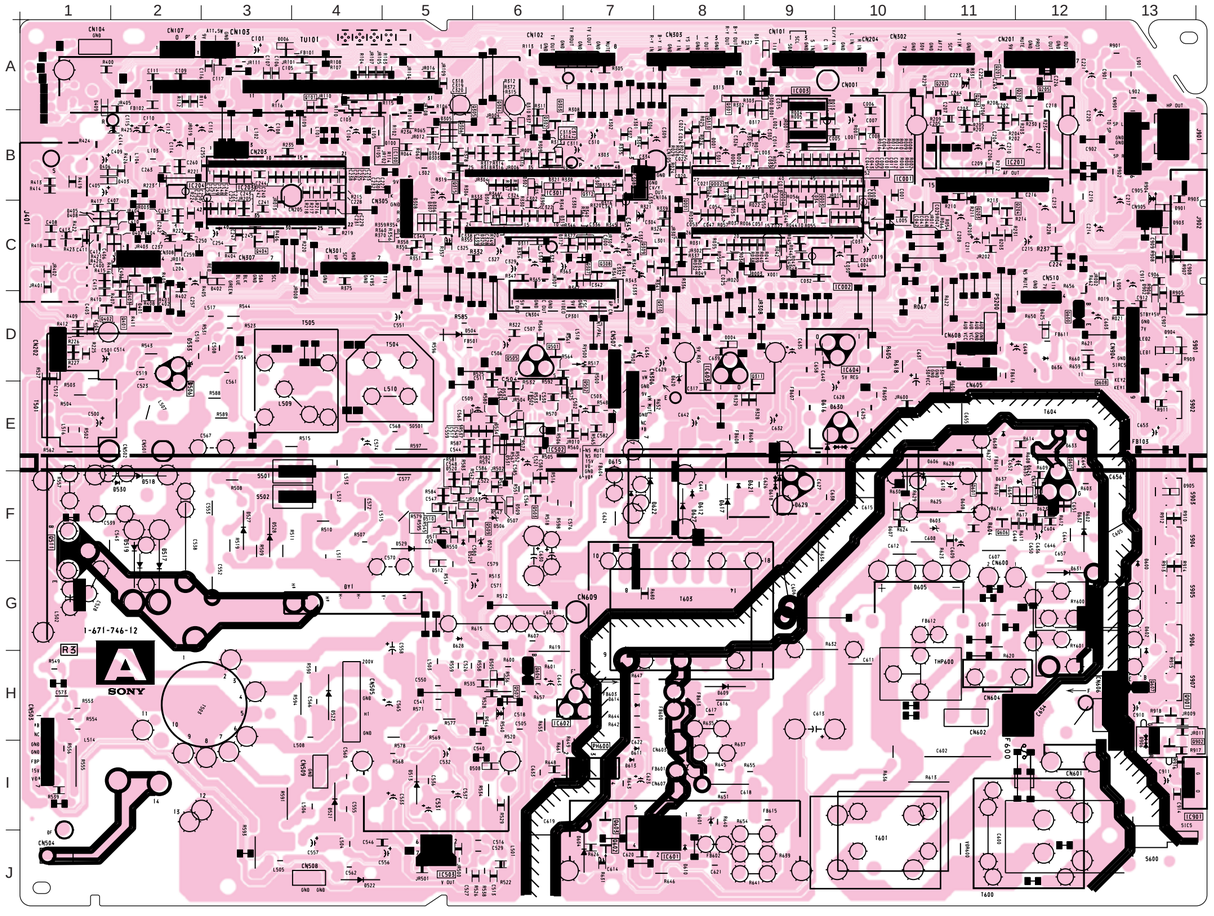
DIODE

D001	B-8
D002	C-8
D003	C-9
D004	D-8
D005	B-8
D006	A-3
D203	C-11
D300	A-9
D301	B-9
D302	B-6
D303	B-5
D304	B-5
D305	B-5
D306	C-5
D307	C-5
D308	B-5
D309	B-6
D310	A-6
D311	C-6
D312	C-6
D313	A-8
D315	B-7
D316	C-7
D317	B-9
D314	A-9
D319	C-6
D320	C-6
D321	B-6
D401	D-2
D402	C-3
D403	B-1
D404	C-2
D405	C-1
D406	B-1
D407	C-2
D408	C-1
D409	A-1
D504	D-5
D505	H-6
D506	F-6
D507	F-6
D508	I-5
D509	E-6
D510	F-5
D511	F-5
D512	G-5
D513	I-5
D517	F-2
D518	F-2
D519	F-2
D520	E-5
D521	I-4
D522	J-4
D525	F-5
D526	F-6
D527	F-3
D528	F-3
D529	F-5
D530	F-2
D531	E-6
D532	E-6
D533	D-2
D534	E-6
D600	G-13
D601	I-8
D602	G-13
D603	F-11
D604	J-7
D605	G-10
D606	E-11
D607	F-10
D608	E-11
D609	H-8
D610	J-8
D611	I-7
D612	F-8
D613	I-7
D614	H-7
D615	E-7
D616	E-9
D617	F-8
D618	F-9
D620	D-8
D621	F-8
D622	F-7
D623	F-12
D624	F-12
D625	D-12
D627	F-8
D628	G-5
D629	F-9
D630	E-9
D631	G-12
D632	F-12
D633	E-12
D634	F-11
D635	F-12
D636	D-12
D637	F-11
D638	E-11
D901	C-13
D902	D-13
D903	C-13
D904	D-13
D905	F-13
D906	I-13

A [POWER SUPPLY, HV, MICON, Y/C JUNGLE]

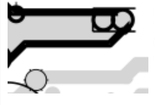
PRINTED WIRING BOARD

– A Board –

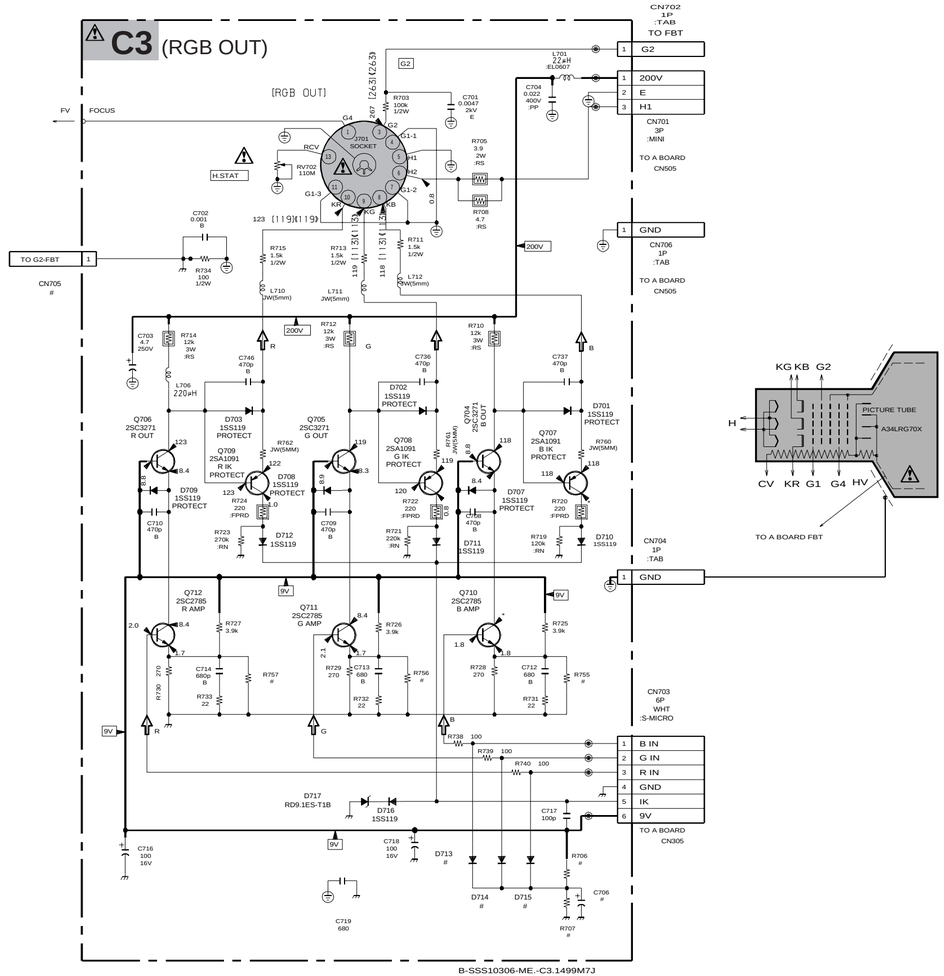


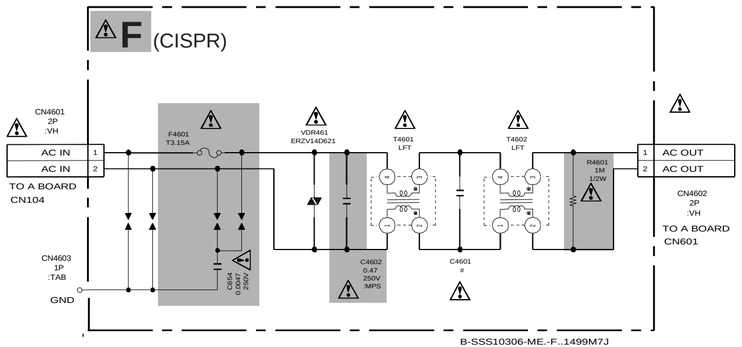
A BOARD WAVEFORMS

① 4.8Vp-p (V)	② 5.1Vp-p (V)	③ 4.0Vp-p (V)	④ PAL/SECAM 1.2Vp-p (H)	④ NTSC 1.5Vp-p (H)
⑤ PAL/SECAM 1.0Vp-p (V)	⑤ NTSC 1.1Vp-p (V)	⑥ 0.2Vp-p (H)	⑦ PAL/SECAM 1.2Vp-p (H)	⑦ NTSC 1.4Vp-p (H)
⑧ PAL/SECAM 1.2Vp-p (H)	⑧ NTSC 1.2Vp-p (H)	⑨ PAL/SECAM 1.5Vp-p (H)	⑨ NTSC 1.5Vp-p (H)	⑩ PAL/SECAM 3.2Vp-p (H)
⑩ NTSC 3.4Vp-p (H)	⑪ 3.4Vp-p (H)	⑫ PAL/SECAM 3.2Vp-p (H)	⑫ NTSC 3.58 3.2Vp-p (H)	⑫ NTSC 4.43 3.4Vp-p (H)
⑬ PAL/SECAM/NTSC 3.58 1.3Vp-p (H)	⑭ 106Vp-p	⑮ 240Vp-p	⑯ 1.1Vp-p (V)	



NOTE:
The circuit indicated at left contains high voltage of over 600 Vp-p. Please pay attention when inspecting or repairing it to prevent an electric shock.





C3 BOARD WAVEFORMS

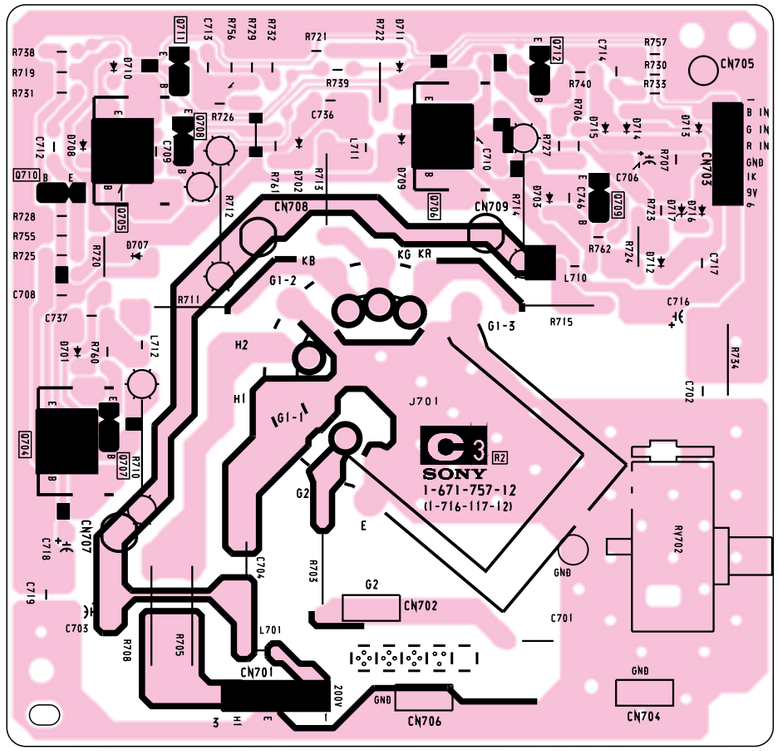
① 25Vp-p (H)	② PAL 89Vp-p (H)	② SECAM 90Vp-p (H)
② NTSC 3.58 80Vp-p (H)	② NTSC 4.43 93Vp-p (H)	③ PAL/SECAM : 95Vp-p (H) NTSC : 86Vp-p (H)
④ 75Vp-p (H)		

KV-1499M7J
RM-952

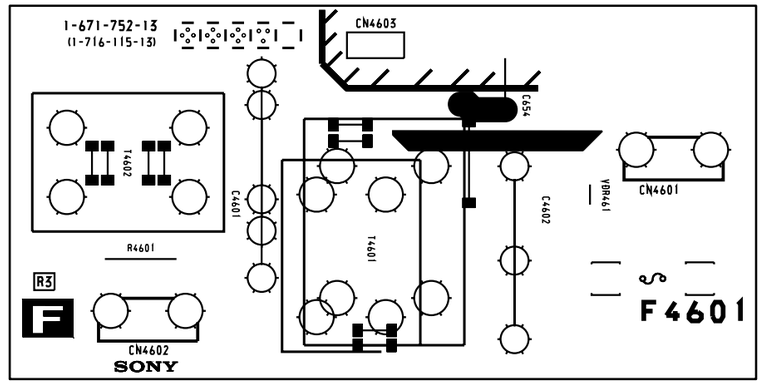
C3 [RGB OUT] **F** [CISPR]

PRINTED WIRING BOARDS

– C3 Board –



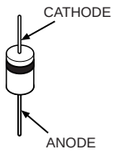
– F Board –



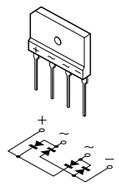
5-5. SEMICONDUCTORS

DIODE

AK04V0
AU-01Z-V1
EGP20G
EL1Z
GP08D



D4SB60L



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ERC06-15S
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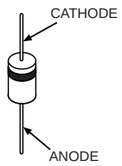
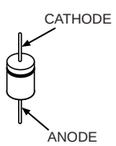
RU4AM-T3
31DQ06-FC5



ERA22-08



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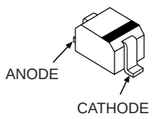
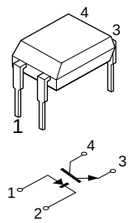
RD10S-B
RD5.1SB-T2
RD9.1S-B
UDZS-TE17-9.1B



ON3171-R



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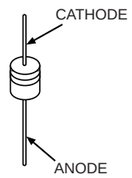
RD6.8ES-B1
RD9.1ES-L2
1SS119-25



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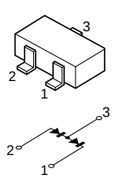
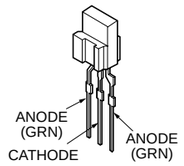


LED

SPB-26MVWF



TRANSISTOR

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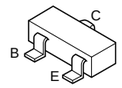
UN2213
UN2216
2SA1162-G
2SC2712-YG



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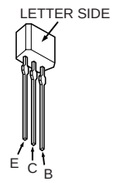

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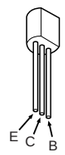

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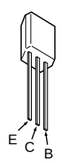

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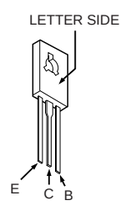

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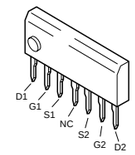

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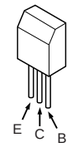

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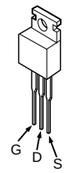

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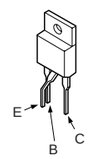

IC

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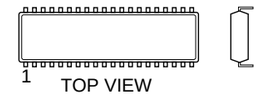
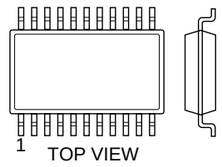
CXP86469-622S (64PIN)
M24C08-BN6 (8PIN)
TDA7429S (42PIN)



Dual In-line Package
Pin 6~98

MM1319AFBE (7PIN)
NJM2903M (8PIN)



Single In -line Package
Pin 6~98

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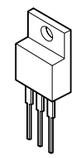
TA7805S



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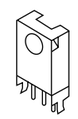
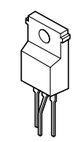


SE-135N



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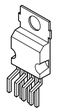
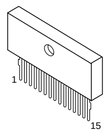


TA8248K



SECTION 6
EXPLODED VIEW

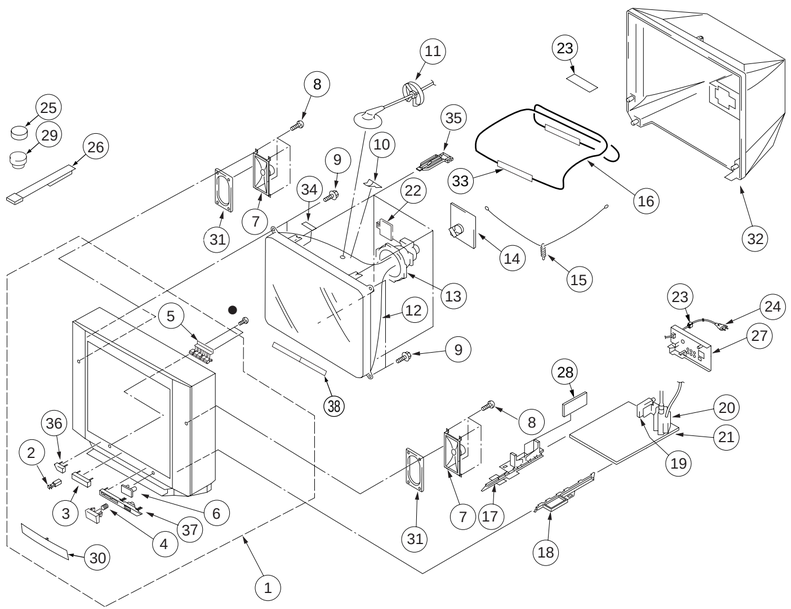
NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

6-1. CHASSIS

● : BVTP3 × 12 7-685-648-79



REF. NO.		PART NO.	DESCRIPTION	REMARK
1		X-4037-120-1	BEZNET ASSY	
2		4-047-464-01	CATCHER, PUSH	
3		4-067-190-01	BUTTON, POWER	
4		4-036-405-11	SPRING, COMPRESSION	
5		4-067-196-01	BUTTON, MULTI	
6	*	4-067-197-01	GUIDE, LIGHT	
7		1-504-305-11	SPEAKER (5X12CM)	
8		4-054-981-31	SCREW, STEP TAPPING	
9		4-057-862-01	SCREW (5), TAPPING	
10		3-704-495-02	SPACER, DY	
11		3-704-372-01	HOLDER, HV CABLE	
12	⚠	8-735-570-05	PICTURE TUBE (A34LRG70X)	
13		8-451-401-11	DEFLECTION YOKE (Y14RSA-S)	
14	*	A-1332-001-A	C3 BOARD MOUNTED	
15		4-369-318-61	SPRING, TENSION	
16		1-419-185-11	COIL, DEGAUSSING	
17	*	4-067-189-01	PWB(L), GUIDE	
18	*	4-071-854-01	PWB(R), GUIDE	
19		8-598-447-00	TUNER, FSS BTF-LG433	
20	⚠	1-453-313-11	TRANSFORMER ASSY, FLYBACK (NX-1912//M3A4)	
21	*	A-1299-053-A	A BOARD COMPLETE	
22		4-057-714-01	PIECE ASSY, TLH CORRECTION	
23	⚠	4-022-115-00	HOLDER, AC CORD	
24		1-574-062-61	CORD, POWER (WITH CONNECTOR) 2.5A/250V	
25		1-452-032-00	MAGNET,DISC	
26		4-051-736-21	PIECE A(90), CONV. CORRECT	
27		4-067-167-21	BRACKET,TERMINAL	
28	*	A-1241-400-A	F BOARD MOUNTED	
29		1-452-094-00	CIRCULAR DISC MAGNET B	
30		4-070-853-61	DOOR, CONTROL	
31	*	4-379-189-01	CUSHION, SPEAKER	
32		4-070-947-01	COVER, REAR	
33	*	4-069-978-11	CUSHION, DGC	
34		4-069-652-21	CUSHION (HS BAND)	
35		4-069-972-01	CLIP (14RSN), DGC	
36	*	4-070-854-01	PANEL (L)	
37	*	4-070-855-01	PANEL (R)	
38		4-070-789-11	SHEET, BLOTTING	

SECTION 7
ELECTRICAL PARTS LIST

A

NOTE:

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- All resistors are in ohms
- F : nonflammable

CAPACITORS
- MF : μF, PF : μμF

COILS
- MMH : mH, UH : μH

REF. NO.	PART NO.	DESCRIPTION				REMARK
*	A-1299-053-A	A BOARD COMPLETE				
		**********				
*	4-055-304-01	HOLDER, LED				
	4-068-468-41	HEAT SINK				
	4-070-202-01	HOLDER, FBT				
	4-352-844-01	PIN, LEAD, COATING				
	4-382-854-11	SCREW (M3X10), P, SW (+)				
	7-685-648-79	SCREW +BVTP 3X12 TYPE2 IT-3				
		<CAPACITOR>				
C004	1-163-001-11	CERAMIC CHIP	220PF	10%	50V	
C005	1-163-001-11	CERAMIC CHIP	220PF	10%	50V	
C006	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V	
C007	1-104-664-11	ELECT	47MF	20%	16V	
C008	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C010	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C012	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C013	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V	
C014	1-104-664-11	ELECT	47MF	20%	25V	
C015	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V	
C016	1-163-113-00	CERAMIC CHIP	68PF	5%	50V	
C017	1-163-113-00	CERAMIC CHIP	68PF	5%	50V	
C019	1-104-664-11	ELECT	47MF	20%	25V	
C022	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V	
C023	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V	
C024	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V	
C026	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V	
C027	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V	
C028	1-163-037-11	CERAMIC CHIP	0.022MF	10%	50V	
C030	1-126-965-11	ELECT	22MF	20%	50V	
C031	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V	
C032	1-107-823-11	CERAMIC CHIP	0.47MF	10%	16V	
C034	1-163-031-11	CERAMIC CHIP	0.01MF		50V	
C041	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C042	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C043	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C044	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C047	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C048	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C050	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C051	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C053	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C054	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C055	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C103	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V	
C104	1-104-665-11	ELECT	100MF	20%	10V	
C107	1-163-005-11	CERAMIC CHIP	470PF	10%	50V	
C108	1-104-664-11	ELECT	47MF	20%	16V	
C109	1-163-005-11	CERAMIC CHIP	470PF	10%	50V	
C110	1-163-005-11	CERAMIC CHIP	470PF	10%	50V	
C111	1-163-005-11	CERAMIC CHIP	470PF	10%	50V	
C112	1-104-664-11	ELECT	47MF	20%	16V	
C113	1-104-664-11	ELECT	47MF	20%	25V	
C114	1-126-967-11	ELECT	47MF	20%	50V	
C202	1-164-182-11	CERAMIC CHIP	0.0033MF	10%	50V	
C203	1-164-182-11	CERAMIC CHIP	0.0033MF	10%	50V	
C204	1-130-481-00	MYLAR	0.0068MF	5%	50V	
C205	1-164-182-11	CERAMIC CHIP	0.0033MF	10%	50V	
C206	1-164-182-11	CERAMIC CHIP	0.0033MF	10%	50V	
C207	1-130-481-00	MYLAR	0.0068MF	5%	50V	
C208	1-126-964-11	ELECT	10MF	20%	50V	
C209	1-126-964-11	ELECT	10MF	20%	50V	
C210	1-126-933-11	ELECT	100MF	20%	16V	
C211	1-126-941-11	ELECT	470MF	20%	25V	
C212	1-126-933-11	ELECT	100MF	20%	16V	
C213	1-126-933-11	ELECT	100MF	20%	16V	
C214	1-126-942-61	ELECT	1000MF	20%	25V	
C215	1-126-942-61	ELECT	1000MF	20%	25V	
C216	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V	
C217	1-126-964-11	ELECT	10MF	20%	50V	
C218	1-136-167-00	FILM	0.15MF	5%	50V	
C219	1-136-167-00	FILM	0.15MF	5%	50V	
C220	1-126-942-61	ELECT	1000MF	20%	25V	
C221	1-126-964-11	ELECT	10MF	20%	50V	
C223	1-126-965-11	ELECT	22MF	20%	50V	
C224	1-163-133-00	CERAMIC CHIP	470PF	5%	50V	
C226	1-109-982-11	CERAMIC CHIP	1MF	10%	10V	
C227	1-163-037-11	CERAMIC CHIP	0.022MF	10%	50V	
C228	1-163-024-00	CERAMIC CHIP	0.018MF	10%	50V	
C229	1-163-018-00	CERAMIC CHIP	0.0056MF	10%	50V	
C230	1-163-024-00	CERAMIC CHIP	0.018MF	10%	50V	
C231	1-163-018-00	CERAMIC CHIP	0.0056MF	10%	50V	
C232	1-163-037-11	CERAMIC CHIP	0.022MF	10%	50V	
C233	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V	
C234	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V	
C235	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V	
C236	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V	
C238	1-164-505-11	CERAMIC CHIP	2.2MF		16V	
C240	1-164-505-11	CERAMIC CHIP	2.2MF		16V	
C241	1-164-346-11	CERAMIC CHIP	1MF		16V	
C242	1-164-505-11	CERAMIC CHIP	2.2MF		16V	
C243	1-216-295-91	SHORT	0			

REF. NO.	PART NO.	DESCRIPTION				REMARK
C244	1-164-700-11	CERAMIC CHIP	0.68MF		16V	
C245	1-164-346-11	CERAMIC CHIP	1MF		16V	
C246	1-163-018-00	CERAMIC CHIP	0.0056MF	10%	50V	
C248	1-163-010-11	CERAMIC CHIP	0.0012MF	10%	50V	
C249	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V	
C251	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V	
C252	1-164-346-11	CERAMIC CHIP	1MF		16V	
C253	1-163-037-11	CERAMIC CHIP	0.022MF	10%	50V	
C254	1-126-965-11	ELECT	22MF	20%	50V	
C255	1-163-037-11	CERAMIC CHIP	0.022MF	10%	50V	
C256	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V	
C259	1-126-933-11	ELECT	100MF	20%	16V	
C264	1-164-505-11	CERAMIC CHIP	2.2MF		16V	
C265	1-164-505-11	CERAMIC CHIP	2.2MF		16V	
C301	1-126-935-11	ELECT	470MF	20%	16V	
C302	1-163-005-11	CERAMIC CHIP	470PF	10%	50V	
C303	1-126-964-11	ELECT	10MF	20%	50V	
C304	1-126-967-11	ELECT	47MF	20%	50V	
C305	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V	
C306	1-163-233-11	CERAMIC CHIP	18PF	5%	50V	
C307	1-163-233-11	CERAMIC CHIP	18PF	5%	50V	
C308	1-163-259-91	CERAMIC CHIP	220PF	5%	50V	
C309	1-126-957-11	ELECT	0.22MF	20%	50V	
C310	1-126-963-11	ELECT	4.7MF	20%	50V	
C311	1-126-962-11	ELECT	3.3MF	20%	50V	
C312	1-164-346-11	CERAMIC CHIP	1MF		16V	
C313	1-164-346-11	CERAMIC CHIP	1MF		16V	
C315	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V	
C316	1-104-664-11	ELECT	47MF	20%	25V	
C317	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V	
C318	1-163-031-11	CERAMIC CHIP	0.01MF		50V	
C319	1-163-031-11	CERAMIC CHIP	0.01MF		50V	
C320	1-163-031-11	CERAMIC CHIP	0.01MF		50V	
C322	1-163-005-11	CERAMIC CHIP	470PF	10%	50V	
C324	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V	
C325	1-126-960-11	ELECT	1MF	20%	50V	
C327	1-126-965-11	ELECT	22MF	20%	50V	
C328	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V	
C330	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V	
C332	1-126-963-11	ELECT	4.7MF	20%	50V	
C335	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V	
C336	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V	
C337	1-126-961-11	ELECT	2.2MF	20%	50V	
C338	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V	
C341	1-115-340-11	CERAMIC CHIP	0.22MF	10%	25V	
C342	1-163-259-91	CERAMIC CHIP	220PF	5%	50V	
C402	1-164-346-11	CERAMIC CHIP	1MF		16V	
C404	1-163-005-11	CERAMIC CHIP	470PF	10%	50V	
C405	1-126-935-11	ELECT	470MF	20%	16V	
C407	1-164-346-11	CERAMIC CHIP	1MF		16V	
C408	1-163-133-00	CERAMIC CHIP	470PF	5%	50V	
C409	1-126-963-11	ELECT	4.7MF	20%	50V	
C502	1-163-275-11	CERAMIC CHIP	0.001MF	5%	50V	
C506	1-107-638-11	ELECT	33MF	20%	160V	
C507	1-161-830-00	CERAMIC	0.0047MF		500V	
C510	1-102-112-00	CERAMIC	330PF	10%	50V	
C512	1-163-989-11	CERAMIC CHIP	0.033MF	10%	25V	
C513	1-163-263-11	CERAMIC CHIP	330PF	5%	50V	

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REF. NO.	PART NO.	DESCRIPTION				REMARK
C514	1-106-383-00	MYLAR	0.047MF	10%	200V	
C518	1-104-665-11	ELECT	100MF	20%	10V	
C519	1-102-212-00	CERAMIC	820PF	10%	500V	
C521	1-126-934-11	ELECT	220MF	20%	16V	
C522	1-126-933-11	ELECT	100MF	20%	16V	
C523	1-102-002-00	CERAMIC	680PF	10%	500V	
C524	1-126-967-11	ELECT	47MF	20%	50V	
C526	1-130-495-00	MYLAR	0.1MF	5%	50V	
C527	1-102-820-00	CERAMIC	330PF	5%	50V	
C528	1-162-115-00	CERAMIC	330PF	10%	2KV	
C530	1-137-372-11	FILM	0.022MF	5%	50V	
C531	1-126-961-11	ELECT	2.2MF	20%	50V	
C532	1-126-941-11	ELECT	470MF	20%	25V	
C533	1-126-941-11	ELECT	470MF	20%	25V	
C536	1-136-165-00	FILM	0.1MF	5%	50V	
C537	1-126-969-11	ELECT	220MF	20%	50V	
C538	1-104-492-11	FILM	0.0056MF	3%	2KV	
C539	1-129-744-61	FILM	0.027MF	5%	400V	
C540	1-136-171-00	FILM	0.33MF	5%	50V	
C546	1-165-319-11	CERAMIC CHIP	0.1MF		50V	
C548	1-164-690-91	CERAMIC CHIP	0.0022MF	5%	50V	
C549	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V	
C550	1-106-220-00	MYLAR	0.1MF	10%	100V	
C551	1-126-960-11	ELECT	1MF	20%	50V	
C552	1-162-116-00	CERAMIC	680PF	10%	2KV	
C553	1-162-116-00	CERAMIC	680PF	10%	2KV	
C554	1-137-417-11	MYLAR	0.0047MF	10%	200V	
C556	1-126-941-11	ELECT	470MF	20%	25V	
C557	1-126-941-11	ELECT	470MF	20%	25V	
C558	1-123-024-21	ELECT	33MF		160V	
C560	1-102-228-00	CERAMIC	470PF	10%	500V	
C562	1-102-228-00	CERAMIC	470PF	10%	500V	
C563	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V	
C564	1-163-038-91	CERAMIC CHIP	0.1MF		25V	
C565	1-107-655-11	ELECT	47MF	20%	250V	
C566	1-102-244-00	CERAMIC	220PF	10%	500V	
C567	1-115-520-11	FILM	0.68MF	5%	250V	
C568	1-102-228-00	CERAMIC	470PF	10%	500V	
C570	1-115-517-11	FILM	0.39MF	5%	250V	
C573	1-137-350-11	MYLAR	0.015MF	10%	100V	
C574	1-107-957-11	ELECT	1MF	20%	250V	
C576	1-130-495-00	MYLAR	0.1MF	5%	50V	
C577	1-106-395-00	MYLAR	0.15MF	10%	200V	
C582	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V	
C586	1-216-295-91	SHORT	0			
C600	! 1-104-705-11	FILM	0.1MF	20%	250V	
C602	! 1-104-705-11	FILM	0.1MF	20%	250V	
C604	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V	
C605	! 1-127-942-51	CERAMIC	330PF	10%	250V	
C606	! 1-127-942-51	CERAMIC	330PF	10%	250V	
C607	1-161-830-00	CERAMIC	0.0047MF	99%	500V	
C608	1-161-830-00	CERAMIC	0.0047MF	99%	500V	
C611	1-161-830-00	CERAMIC	0.0047MF	99%	500V	
C612	1-161-830-00	CERAMIC	0.0047MF	99%	500V	
C613	1-117-752-11	ELECT(BLOCK)	330MF	20%	450V	
C618	1-125-893-11	FILM	680PF	3%	1.5KV	
C619	! 1-119-886-51	CERAMIC	470PF	10%	250V	

REF. NO.	PART NO.	DESCRIPTION				REMARK
C620	1-163-133-00	CERAMIC CHIP	470PF	5%	50V	
C621	1-102-114-00	CERAMIC	470PF	10%	50V	
C622	1-102-074-00	CERAMIC	0.001MF	10%	50V	
C623	1-104-665-11	ELECT	100MF	20%	25V	
C624	1-125-772-91	CERAMIC	1500PF	10%	2KV	
C627	1-102-002-00	CERAMIC	680PF	10%	500V	
C628	1-126-942-61	ELECT	1000MF	20%	25V	
C629	1-126-964-11	ELECT	10MF	20%	50V	
C630	1-123-024-21	ELECT	33MF		160V	
C633	1-104-999-11	MYLAR	0.1MF	10%	200V	
C634	1-126-933-11	ELECT	100MF	20%	16V	
C635	1-104-665-11	ELECT	100MF	20%	10V	
C636	1-104-760-11	CERAMIC CHIP	0.047MF	10%	50V	
C639	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V	
C640	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V	
C641	1-102-002-00	CERAMIC	680PF	10%	500V	
C642	1-126-943-11	ELECT	2200MF	20%	25V	
C643	1-104-665-11	ELECT	100MF	20%	10V	
C644	1-104-331-11	CERAMIC	0.0022MF	10%	1KV	
C645	1-137-605-11	FILM	0.01MF	10%	250V	
C646	1-107-679-91	ELECT	10MF	20%	450V	
C647	1-163-275-11	CERAMIC CHIP	0.001MF	5%	50V	
C649	1-126-940-11	ELECT	330MF	20%	25V	
C650	1-163-275-11	CERAMIC CHIP	0.001MF	5%	50V	
C651	1-163-133-00	CERAMIC CHIP	470PF	5%	50V	
C652	1-126-965-11	ELECT	22MF	20%	50V	
C653	1-104-664-11	ELECT	47MF	20%	25V	
C657	1-101-821-00	CERAMIC	0.0022MF		500V	
C658	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V	
C901	1-136-153-00	FILM	0.01MF	5%	50V	
C902	1-136-153-00	FILM	0.01MF	5%	50V	
C905	1-126-963-11	ELECT	4.7MF	20%	50V	
C906	1-164-346-11	CERAMIC CHIP	1MF		16V	
C907	1-163-133-00	CERAMIC CHIP	470PF	5%	50V	
C910	1-126-967-11	ELECT	47MF	20%	50V	
C911	1-126-967-11	ELECT	47MF	20%	50V	
C912	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V	
C913	1-104-665-11	ELECT	100MF	20%	10V	
C914	1-163-133-00	CERAMIC CHIP	470PF	5%	50V	
		<CONNECTOR>				
CN104	1-695-915-11	TAB (CONTACT)				
CN202	* 1-785-608-11	PIN, CONNECTOR 4P				
CN203	* 1-564-506-11	PLUG, CONNECTOR 3P				
CN204	* 1-564-506-11	PLUG, CONNECTOR 3P				
CN305	* 1-564-509-11	PLUG, CONNECTOR 6P				
CN505	* 1-508-766-00	PIN, CONNECTOR (5MM PITCH) 4P				
CN601	* 1-580-843-11	PIN, CONNECTOR (POWER)				
CN602	* 1-508-786-00	PIN, CONNECTOR (5MM PITCH) 2P				
CN604	* 1-573-963-11	PIN, CONNECTOR (PC BOARD) 3P				
CN901	* 1-564-507-11	PLUG, CONNECTOR 4P				
		<DIODE>				
D001	8-719-988-61	DIODE 1SS355TE-17				
D005	8-719-988-61	DIODE 1SS355TE-17				
D006	8-719-988-61	DIODE 1SS355TE-17				
D203	8-719-914-42	DIODE DA204K				
D300	1-216-295-91	SHORT	0			
D301	8-719-988-61	DIODE 1SS355TE-17				
D306	8-719-988-61	DIODE 1SS355TE-17				
D307	8-719-988-61	DIODE 1SS355TE-17				
D308	8-719-988-61	DIODE 1SS355TE-17				
D309	8-719-159-10	DIODE RD5.1SB-T2				
D311	8-719-988-61	DIODE 1SS355TE-17				
D312	8-719-988-61	DIODE 1SS355TE-17				
D313	8-719-988-61	DIODE 1SS355TE-17				
D314	8-719-988-61	DIODE 1SS355TE-17				
D315	8-719-988-61	DIODE 1SS355TE-17				
D316	8-719-069-60	DIODE UDZS-TE17-9.1B				
D320	8-719-069-60	DIODE UDZS-TE17-9.1B				
D321	8-719-069-60	DIODE UDZS-TE17-9.1B				
D402	8-719-158-35	DIODE RD9.1SB				
D403	8-719-158-35	DIODE RD9.1SB				
D405	8-719-158-35	DIODE RD9.1SB				
D406	8-719-158-35	DIODE RD9.1SB				
D504	8-719-302-43	DIODE EL1Z				
D505	8-719-988-61	DIODE 1SS355TE-17				
D506	8-719-911-19	DIODE 1SS119-25				
D507	8-719-988-61	DIODE 1SS355TE-17				
D508	8-719-988-61	DIODE 1SS355TE-17				
D509	1-216-073-00	RES,CHIP	10K	5%	1/10W	
D510	8-719-988-61	DIODE 1SS355TE-17				
D511	8-719-988-61	DIODE 1SS355TE-17				
D512	8-719-988-61	DIODE 1SS355TE-17				
D513	8-719-908-03	DIODE GP08D				
D517	8-719-945-80	DIODE ERC06-15S				
D518	8-719-979-85	DIODE EGP20G				
D520	1-216-295-91	SHORT	0			
D521	8-719-302-43	DIODE EL1Z				
D522	8-719-302-43	DIODE EL1Z				
D523	8-719-302-43	DIODE EL1Z				
D527	8-719-908-03	DIODE GP08D				
D528	8-719-908-03	DIODE GP08D				
D534	1-216-295-91	SHORT	0			
D602	8-719-911-19	DIODE 1SS119-25				
D605	8-719-510-53	DIODE D4SB60L				
D610	8-719-043-76	DIODE AK04V0				
D611	8-719-046-74	DIODE AU-01Z-V1				
D613	8-719-046-74	DIODE AU-01Z-V1				
D614	8-719-046-74	DIODE AU-01Z-V1				
D615	8-719-312-10	DIODE RU4AM-T3				
D618	8-719-067-18	DIODE RN4Z				
D620	8-719-110-72	DIODE RD30ESB2				
D623	8-719-978-65	DIODE DTZ-TT11-15B				
D624	8-719-073-01	DIODE MA111-(K8).S0				
D625	8-719-158-39	DIODE RD10SB				
D627	8-719-073-84	DIODE 31DQ06-FC5				
D628	8-719-911-19	DIODE 1SS119-25				
D631	8-719-068-00	DIODE ERC04-06SE				
D632	8-719-068-00	DIODE ERC04-06SE				
D633	8-719-948-45	DIODE ERA22-08				
D634	8-719-073-01	DIODE MA111-(K8).S0				

REF. NO.		PART NO.	DESCRIPTION		REMARK
D635		8-719-073-01	DIODE MA111-(K8).S0		
D636		8-719-510-02	DIODE D1NS4		
D637		8-719-109-96	DIODE RD6.8ESB1		
D638		8-719-510-48	DIODE D1N20R		
D901		8-719-158-35	DIODE RD9.1SB		
D902		8-719-158-35	DIODE RD9.1SB		
D904		8-719-158-35	DIODE RD9.1SB		
D905		8-719-158-35	DIODE RD9.1SB		
D906		8-719-045-19	DIODE SPB-26MVWF		
			<CONNECTOR>		
DY1	*	1-580-798-11	CONNECTOR PIN (DY) 6P		
			<FERRITE BEAD>		
FB103		1-410-397-21	FERRITE	1.1UH	
FB501		1-410-397-21	FERRITE	1.1UH	
FB502		1-410-397-21	FERRITE	1.1UH	
FB600		1-410-397-21	FERRITE	1.1UH	
FB601		1-410-397-21	FERRITE	1.1UH	
FB602		1-410-397-21	FERRITE	1.1UH	
FB603		1-410-397-21	FERRITE	1.1UH	
FB604		1-412-911-31	FERRITE	0UH	
FB607		1-410-397-21	FERRITE	1.1UH	
FB608		1-412-911-31	FERRITE	0UH	
FB611		1-410-397-21	FERRITE	1.1UH	
FB615		1-410-397-21	FERRITE	1.1UH	
			<IC>		
IC001		8-752-906-20	IC CXP86449-622S		
IC002		8-759-371-21	IC MM1319AFBE		
IC003		8-759-527-71	IC M24C08-BN6		
IC201		8-759-339-60	IC TA8248K		
IC203		8-759-553-40	IC TDA7429S		
IC301		8-752-090-41	IC CXA2139S		
IC502		8-759-700-07	IC NJM2903M		
IC503		8-759-980-58	IC TDA8172		
IC601		8-749-016-43	IC STR-F6653-LF1351		
IC602		8-749-920-61	IC SE-135N		
IC603		8-759-701-59	IC NJM78M09FA		
IC604		8-759-231-53	IC TA7805S		
IC901		8-742-134-00	HYB IC SBX1981-51P		
			<JACK>		
J401		1-779-849-11	JACK BLOCK, PIN 4P		
J901		1-770-786-21	JACK		
J902		1-779-205-11	JACK, PIN 2P		
			<CHIP CONDUCTOR>		
JR001		1-216-295-91	SHORT	0	
JR002		1-216-295-91	SHORT	0	
JR003		1-216-295-91	SHORT	0	
JR004		1-216-295-91	SHORT	0	
JR005		1-216-295-91	SHORT	0	

REF. NO.	PART NO.	DESCRIPTION		REMARK
JR006	1-216-295-91	SHORT	0	
JR007	1-216-295-91	SHORT	0	
JR008	1-216-295-91	SHORT	0	
JR009	1-216-295-91	SHORT	0	
JR010	1-216-295-91	SHORT	0	
JR011	1-216-295-91	SHORT	0	
JR012	1-216-295-91	SHORT	0	
JR013	1-216-295-91	SHORT	0	
JR014	1-216-295-91	SHORT	0	
JR015	1-216-295-91	SHORT	0	
JR016	1-216-295-91	SHORT	0	
JR018	1-216-295-91	SHORT	0	
JR019	1-216-295-91	SHORT	0	
JR102	1-216-295-91	SHORT	0	
JR109	1-216-295-91	SHORT	0	
JR202	1-216-295-91	SHORT	0	
JR301	1-216-295-91	SHORT	0	
JR303	1-216-295-91	SHORT	0	
JR404	1-216-295-91	SHORT	0	
JR405	1-216-295-91	SHORT	0	
JR500	1-216-295-91	SHORT	0	
JR501	1-216-295-91	SHORT	0	
JR503	1-216-295-91	SHORT	0	
JR600	1-216-295-91	SHORT	0	
		<COIL>		
L002	1-414-856-11	INDUCTOR	10UH	
L003	1-414-180-11	INDUCTOR	3.3UH	
L005	1-414-233-22	INDUCTOR CHIP	0UH	
L101	1-414-856-11	INDUCTOR	10UH	
L102	1-414-856-11	INDUCTOR	10UH	
L103	1-414-856-11	INDUCTOR	10UH	
L104	1-414-856-11	INDUCTOR	10UH	
L105	1-414-856-11	INDUCTOR	10UH	
L204	1-414-856-11	INDUCTOR	10UH	
L301	1-414-189-31	INDUCTOR	100UH	
L302	1-414-185-41	INDUCTOR	22UH	
L501	1-412-525-31	INDUCTOR	10UH	
L502	1-422-613-11	COIL, AIR CORE		
L503	1-412-525-31	INDUCTOR	10UH	
L504	1-412-525-31	INDUCTOR	10UH	
L505	1-412-525-31	INDUCTOR	10UH	
L506	1-412-525-31	INDUCTOR	10UH	
L507	1-459-111-00	INDUCTOR	10MMH	
L508	1-412-525-31	INDUCTOR	10UH	
L509	1-406-982-11	INDUCTOR	680UH	
L510	1-419-301-11	COIL, HORIZONTAL LINEARITY		
L512	1-414-493-41	INDUCTOR	4.7MMH	
L515	1-459-104-00	COIL, WITH CORE		
L518	1-414-187-11	INDUCTOR	47UH	
L601	1-412-527-11	INDUCTOR	15UH	
L901	1-408-603-31	INDUCTOR	10UH	
L902	1-408-603-31	INDUCTOR	10UH	
L905	1-414-856-11	INDUCTOR	10UH	

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

A

REF. NO.	PART NO.	DESCRIPTION			REMARK
		<PHOTO COUPLER>			
PH600 ⚠	8-749-924-35	PHOTO COUPLER ON3171-R			
		<IC LINK>			
PS200	1-532-675-21	LINK, IC 1.5A/150V			
		<TRANSISTOR>			
Q002	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q003	8-729-424-08	TRANSISTOR UN2111			
Q004	8-729-421-22	TRANSISTOR UN2211			
Q101	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q201	8-729-424-67	TRANSISTOR UN2216			
Q202	8-729-424-67	TRANSISTOR UN2216			
Q203	8-729-421-19	TRANSISTOR UN2213			
Q204	8-729-216-22	TRANSISTOR 2SA1162-G			
Q205	8-729-421-19	TRANSISTOR UN2213			
Q206	8-729-421-19	TRANSISTOR UN2213			
Q207	8-729-421-19	TRANSISTOR UN2213			
Q301	8-729-216-22	TRANSISTOR 2SA1162-G			
Q302	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q303	8-729-216-22	TRANSISTOR 2SA1162-G			
Q305	8-729-216-22	TRANSISTOR 2SA1162-G			
Q306	8-729-216-22	TRANSISTOR 2SA1162-G			
Q307	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q308	8-729-216-22	TRANSISTOR 2SA1162-G			
Q312	8-729-216-22	TRANSISTOR 2SA1162-G			
Q313	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q315	8-729-421-19	TRANSISTOR UN2213			
Q401	8-729-424-67	TRANSISTOR UN2216			
Q404	8-729-216-22	TRANSISTOR 2SA1162-G			
Q503	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q505	8-729-931-45	TRANSISTOR IRF614			
Q506	8-729-140-96	TRANSISTOR 2SD774-34			
Q507	8-729-216-22	TRANSISTOR 2SA1162-G			
Q509	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q511	8-729-016-32	TRANSISTOR 2SC4927-01			
Q604	8-729-200-17	TRANSISTOR 2SA1091-O			
Q605	8-729-044-30	TRANSISTOR 2SK2845-LB102			
Q606	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q607	8-729-922-37	TRANSISTOR 2SD2144S-UVW			
Q608	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q901	8-729-421-19	TRANSISTOR UN2213			
Q902	8-729-421-19	TRANSISTOR UN2213			
		<RESISTOR>			
R001	1-414-233-22	INDUCTOR CHIP	0UH		
R002	1-216-025-91	RES,CHIP	100	5%	1/10W
R003	1-216-073-00	RES,CHIP	10K	5%	1/10W
R004	1-216-025-91	RES,CHIP	100	5%	1/10W
R005	1-216-025-91	RES,CHIP	100	5%	1/10W
R007	1-216-295-91	SHORT	0		
R008	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R010	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R011	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R012	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R013	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R014	1-216-025-91	RES,CHIP	100	5%	1/10W
R015	1-216-025-91	RES,CHIP	100	5%	1/10W
R017	1-216-049-91	RES,CHIP	1K	5%	1/10W
R018	1-216-033-00	RES,CHIP	220	5%	1/10W
R019	1-216-073-00	RES,CHIP	10K	5%	1/10W
R021	1-216-073-00	RES,CHIP	10K	5%	1/10W
R022	1-216-033-00	RES,CHIP	220	5%	1/10W
R024	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R025	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R026	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R027	1-216-073-00	RES,CHIP	10K	5%	1/10W
R029	1-216-049-91	RES,CHIP	1K	5%	1/10W
R031	1-216-049-91	RES,CHIP	1K	5%	1/10W
R035	1-216-025-91	RES,CHIP	100	5%	1/10W
R036	1-216-025-91	RES,CHIP	100	5%	1/10W
R037	1-216-025-91	RES,CHIP	100	5%	1/10W
R040	1-216-025-91	RES,CHIP	100	5%	1/10W
R041	1-216-025-91	RES,CHIP	100	5%	1/10W
R042	1-216-295-91	SHORT	0		
R043	1-216-049-91	RES,CHIP	1K	5%	1/10W
R044	1-216-025-91	RES,CHIP	100	5%	1/10W
R045	1-414-233-22	INDUCTOR CHIP	0UH		
R046	1-216-049-91	RES,CHIP	1K	5%	1/10W
R047	1-414-233-22	INDUCTOR CHIP	0UH		
R048	1-216-073-00	RES,CHIP	10K	5%	1/10W
R050	1-216-073-00	RES,CHIP	10K	5%	1/10W
R053	1-216-049-91	RES,CHIP	1K	5%	1/10W
R055	1-216-073-00	RES,CHIP	10K	5%	1/10W
R056	1-216-073-00	RES,CHIP	10K	5%	1/10W
R061	1-216-033-00	RES,CHIP	220	5%	1/10W
R062	1-216-041-00	RES,CHIP	470	5%	1/10W
R063	1-216-037-00	RES,CHIP	330	5%	1/10W
R064	1-216-037-00	RES,CHIP	330	5%	1/10W
R065	1-216-037-00	RES,CHIP	330	5%	1/10W
R066	1-216-049-91	RES,CHIP	1K	5%	1/10W
R067	1-216-049-91	RES,CHIP	1K	5%	1/10W
R105	1-216-295-91	SHORT	0		
R109	1-216-041-00	RES,CHIP	470	5%	1/10W
R111	1-216-025-91	RES,CHIP	100	5%	1/10W
R112	1-216-025-91	RES,CHIP	100	5%	1/10W
R113	1-216-047-91	RES,CHIP	820	5%	1/10W
R202	1-216-081-00	RES,CHIP	22K	5%	1/10W
R203	1-216-077-91	RES,CHIP	15K	5%	1/10W
R204	1-216-077-91	RES,CHIP	15K	5%	1/10W
R205	1-216-077-91	RES,CHIP	15K	5%	1/10W
R206	1-216-077-91	RES,CHIP	15K	5%	1/10W
R207	1-216-081-00	RES,CHIP	22K	5%	1/10W
R208	1-216-069-00	RES,CHIP	6.8K	5%	1/10W
R209	1-216-069-00	RES,CHIP	6.8K	5%	1/10W
R211	1-216-033-00	RES,CHIP	220	5%	1/10W
R212	1-216-033-00	RES,CHIP	220	5%	1/10W
R213	1-216-073-00	RES,CHIP	10K	5%	1/10W
R214	1-216-073-00	RES,CHIP	10K	5%	1/10W
R215	1-216-059-00	RES,CHIP	2.7K	5%	1/10W

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REF. NO.	PART NO.	DESCRIPTION			REMARK
R216	1-216-059-00	RES,CHIP	2.7K	5%	1/10W
R217	1-216-067-00	RES,CHIP	5.6K	5%	1/10W
R218	1-216-067-00	RES,CHIP	5.6K	5%	1/10W
R219	1-216-025-91	RES,CHIP	100	5%	1/10W
R220	1-216-025-91	RES,CHIP	100	5%	1/10W
R221	1-216-295-91	SHORT	0		
R225	1-216-033-00	RES,CHIP	220	5%	1/10W
R226	1-216-033-00	RES,CHIP	220	5%	1/10W
R227	1-216-033-00	RES,CHIP	220	5%	1/10W
R228	1-249-389-11	CARBON	4.7	5%	1/4W
R229	1-216-073-00	RES,CHIP	10K	5%	1/10W
R230	1-216-061-00	RES,CHIP	3.3K	5%	1/10W
R231	1-216-295-91	SHORT	0		
R234	1-249-389-11	CARBON	4.7	5%	1/4W
R235	1-216-069-00	RES,CHIP	6.8K	5%	1/10W
R236	1-216-069-00	RES,CHIP	6.8K	5%	1/10W
R237	1-216-308-00	RES,CHIP	4.7	5%	1/10W
R301	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R302	1-216-295-91	SHORT	0		
R303	1-216-049-91	RES,CHIP	1K	5%	1/10W
R304	1-216-073-00	RES,CHIP	10K	5%	1/10W
R305	1-216-051-00	RES,CHIP	1.2K	5%	1/10W
R306	1-216-077-91	RES,CHIP	15K	5%	1/10W
R308	1-216-025-91	RES,CHIP	100	5%	1/10W
R309	1-216-025-91	RES,CHIP	100	5%	1/10W
R310	1-216-025-91	RES,CHIP	100	5%	1/10W
R311	1-216-017-91	RES,CHIP	47	5%	1/10W
R312	1-216-041-00	RES,CHIP	470	5%	1/10W
R313	1-216-053-00	RES,CHIP	1.5K	5%	1/10W
R314	1-216-045-00	RES,CHIP	680	5%	1/10W
R316	1-216-053-00	RES,CHIP	1.5K	5%	1/10W
R317	1-216-077-91	RES,CHIP	15K	5%	1/10W
R318	1-216-051-00	RES,CHIP	1.2K	5%	1/10W
R319	1-216-025-91	RES,CHIP	100	5%	1/10W
R320	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R321	1-216-073-00	RES,CHIP	10K	5%	1/10W
R322	1-216-033-00	RES,CHIP	220	5%	1/10W
R331	1-216-295-91	SHORT	0		
R332	1-216-033-00	RES,CHIP	220	5%	1/10W
R333	1-216-073-00	RES,CHIP	10K	5%	1/10W
R334	1-216-129-00	RES,CHIP	2.2M	5%	1/10W
R335	1-216-045-00	RES,CHIP	680	5%	1/10W
R338	1-216-041-00	RES,CHIP	470	5%	1/10W
R340	1-216-025-91	RES,CHIP	100	5%	1/10W
R345	1-216-081-00	RES,CHIP	22K	5%	1/10W
R348	1-208-806-11	RES,CHIP	10K	0.50%	1/10W
R349	1-216-073-00	RES,CHIP	10K	5%	1/10W
R350	1-216-061-00	RES,CHIP	3.3K	5%	1/10W
R351	1-216-053-00	RES,CHIP	1.5K	5%	1/10W
R354	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R355	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R356	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R357	1-216-079-00	RES,CHIP	18K	5%	1/10W
R358	1-216-049-91	RES,CHIP	1K	5%	1/10W
R359	1-216-033-00	RES,CHIP	220	5%	1/10W
R360	1-216-033-00	RES,CHIP	220	5%	1/10W
R361	1-216-073-00	RES,CHIP	10K	5%	1/10W
R362	1-216-075-00	RES,CHIP	12K	5%	1/10W
R363	1-216-079-00	RES,CHIP	18K	5%	1/10W
R364	1-216-295-91	SHORT	0		
R365	1-216-033-00	RES,CHIP	220	5%	1/10W
R366	1-216-073-00	RES,CHIP	10K	5%	1/10W
R367	1-216-073-00	RES,CHIP	10K	5%	1/10W
R370	1-216-033-00	RES,CHIP	220	5%	1/10W
R376	1-216-081-00	RES,CHIP	22K	5%	1/10W
R377	1-216-121-91	RES,CHIP	1M	5%	1/10W
R378	1-216-031-00	RES,CHIP	180	5%	1/10W
R404	1-216-073-00	RES,CHIP	10K	5%	1/10W
R405	1-216-049-91	RES,CHIP	1K	5%	1/10W
R406	1-216-073-00	RES,CHIP	10K	5%	1/10W
R408	1-216-049-91	RES,CHIP	1K	5%	1/10W
R411	1-216-113-00	RES,CHIP	470K	5%	1/10W
R412	1-216-041-00	RES,CHIP	470	5%	1/10W
R413	1-216-021-00	RES,CHIP	68	5%	1/10W
R414	1-216-113-00	RES,CHIP	470K	5%	1/10W
R417	1-216-077-91	RES,CHIP	15K	5%	1/10W
R418	1-216-113-00	RES,CHIP	470K	5%	1/10W
R419	1-216-022-00	RES,CHIP	75	5%	1/10W
R426	1-216-033-00	RES,CHIP	220	5%	1/10W
R505	1-216-107-00	RES,CHIP	270K	5%	1/10W
R506	1-216-083-00	RES,CHIP	27K	5%	1/10W
R507	1-249-389-11	CARBON	4.7	5%	1/4W F
R508	1-215-882-00	METAL OXIDE	22	5%	2W F
R509	1-215-885-00	METAL OXIDE	68	5%	2W F
R510	1-215-886-11	METAL OXIDE	100	5%	2W F
R511	1-215-911-11	METAL OXIDE	100	5%	3W F
R516	1-216-081-00	RES,CHIP	22K	5%	1/10W
R518	1-247-807-31	CARBON	100	5%	1/4W
R520	1-215-445-00	METAL	10K	1%	1/4W
R522	1-208-806-11	RES,CHIP	10K	0.50%	1/10W
R523	1-249-411-11	CARBON	330	5%	1/4W
R526	1-208-798-11	RES,CHIP	4.7K	0.50%	1/10W
R527	1-216-001-00	RES,CHIP	10	5%	1/10W
R528	1-208-814-91	RES,CHIP	22K	0.50%	1/10W
R529	1-208-766-11	RES,CHIP	220	0.50%	1/10W
R531	1-247-843-11	CARBON	3.3K	5%	1/4W
R533	1-249-417-11	CARBON	1K	5%	1/4W
R534	1-216-361-00	METAL OXIDE	0.22	5%	2W F
R535	1-216-067-00	RES,CHIP	5.6K	5%	1/10W
R536	1-216-067-00	RES,CHIP	5.6K	5%	1/10W
R540	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R541	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R542	1-216-295-91	SHORT	0		
R543	1-249-426-11	CARBON	5.6K	5%	1/4W F
R544	1-215-922-11	METAL OXIDE	6.8K	5%	3W F
R545	1-216-077-91	RES,CHIP	15K	5%	1/10W
R546	1-216-077-91	RES,CHIP	15K	5%	1/10W
R547	1-216-085-00	RES,CHIP	33K	5%	1/10W
R549	1-215-459-00	METAL	39K	1%	1/4W
R550	1-216-097-91	RES,CHIP	100K	5%	1/10W
R551	1-249-421-11	CARBON	2.2K	5%	1/4W
R552	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R553	1-215-459-00	METAL	39K	1%	1/4W
R554	1-215-461-00	METAL	47K	1%	1/4W
R556	1-215-437-00	METAL	4.7K	1%	1/4W

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

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REF. NO.		PART NO.	DESCRIPTION			REMARK
R557		1-216-345-11	METAL OXIDE	0.47	5%	1W F
R558		1-249-421-11	CARBON	2.2K	5%	1/4W
R559		1-249-429-11	CARBON	10K	5%	1/4W
R560		1-216-073-00	RES,CHIP	10K	5%	1/10W
R562		1-249-401-11	CARBON	47	5%	1/4W
R565		1-216-085-00	RES,CHIP	33K	5%	1/10W
R567		1-216-085-00	RES,CHIP	33K	5%	1/10W
R568		1-249-383-11	CARBON	1.5	5%	1/4W F
R570		1-216-079-00	RES,CHIP	18K	5%	1/10W
R571		1-215-437-00	METAL	4.7K	1%	1/4W
R573		1-216-073-00	RES,CHIP	10K	5%	1/10W
R577		1-215-913-11	METAL OXIDE	220	5%	3W F
R578		1-216-369-00	METAL OXIDE	1	5%	2W F
R579		1-216-097-91	RES,CHIP	100K	5%	1/10W
R580		1-216-675-91	METAL CHIP	10K	0.50%	1/10W
R581		1-208-800-11	RES,CHIP	5.6K	0.50%	1/10W
R583		1-216-105-91	RES,CHIP	220K	5%	1/10W
R584		1-216-073-00	RES,CHIP	10K	5%	1/10W
R585		1-249-391-11	CARBON	6.8	5%	1/4W F
R590		1-215-465-00	METAL	68K	1%	1/4W
R591		1-260-288-11	CARBON	0.47	5%	1/2W F
R593		1-260-288-11	CARBON	0.47	5%	1/2W F
R594		1-260-288-11	CARBON	0.47	5%	1/2W F
R596		1-215-922-11	METAL OXIDE	6.8K	5%	3W F
R597		1-247-750-11	CARBON	680	5%	1/2W F
R598		1-249-438-11	CARBON	56K	5%	1/4W
R599		1-249-389-11	CARBON	4.7	5%	1/4W
R600		1-249-438-11	CARBON	56K	5%	1/4W
R601		1-249-418-11	CARBON	1.2K	5%	1/4W F
R602		1-249-389-11	CARBON	4.7	5%	1/4W F
R603		1-215-485-00	METAL	470K	1%	1/4W
R607		1-249-425-11	CARBON	4.7K	5%	1/4W
R608		1-240-205-91	CARBON	22M	5%	1/2W
R609		1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R610		1-216-073-00	RES,CHIP	10K	5%	1/10W
R611		1-216-089-91	RES,CHIP	47K	5%	1/10W
R612		1-216-045-00	RES,CHIP	680	5%	1/10W
R614		1-216-041-00	RES,CHIP	470	5%	1/10W
R615		1-216-353-00	METAL OXIDE	2.2	5%	1W F
R616		1-260-302-51	CARBON	6.8	5%	1/2W F
R617		1-247-791-91	CARBON	22	5%	1/4W
R619		1-260-128-11	CARBON	270K	5%	1/2W
R620		1-215-915-11	METAL OXIDE	470	5%	3W F
R622		1-216-400-11	METAL OXIDE	8.2	5%	3W F
R625		1-202-961-11	CEMENTED	1.8	5%	10W
R628		1-202-961-11	CEMENTED	1.8	5%	10W
R632		1-202-933-61	FUSIBLE	0.1	10%	1/2W F
R634	⚠	1-218-265-11	METAL	8.2M	5%	1W
R636		1-215-924-00	METAL OXIDE	15K	5%	3W F
R639		1-216-363-00	METAL OXIDE	0.33	5%	2W F
R640		1-249-415-11	CARBON	680	5%	1/4W
R641		1-216-362-11	METAL OXIDE	0.27	5%	2W F
R642		1-249-419-11	CARBON	1.5K	5%	1/4W
R643		1-247-843-11	CARBON	3.3K	5%	1/4W
R644		1-249-419-11	CARBON	1.5K	5%	1/4W
R646		1-215-924-00	METAL OXIDE	15K	5%	3W F
R647		1-249-401-11	CARBON	47	5%	1/4W
R648		1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R649		1-249-417-11	CARBON	1K	5%	1/4W
R650		1-215-882-00	METAL OXIDE	22	5%	2W F
R652		1-215-900-11	METAL OXIDE	22K	5%	2W F
R653		1-215-873-00	METAL OXIDE	4.7K	5%	1W F
R657		1-260-127-11	CARBON	220K	5%	1/2W
R659		1-216-049-91	RES,CHIP	1K	5%	1/10W
R660		1-216-073-00	RES,CHIP	10K	5%	1/10W
R661		1-215-873-00	METAL OXIDE	4.7K	5%	1W F
R680		1-216-311-00	RES,CHIP	6.8	5%	1/10W
R901		1-249-411-11	CARBON	330	5%	1/4W
R902		1-249-411-11	CARBON	330	5%	1/4W
R903		1-216-022-00	RES,CHIP	75	5%	1/10W
R904		1-216-033-00	RES,CHIP	220	5%	1/10W
R905		1-216-113-00	RES,CHIP	470K	5%	1/10W
R906		1-216-077-91	RES,CHIP	15K	5%	1/10W
R909		1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R910		1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R911		1-216-067-00	RES,CHIP	5.6K	5%	1/10W
R912		1-216-041-00	RES,CHIP	470	5%	1/10W
R913		1-216-049-91	RES,CHIP	1K	5%	1/10W
R914		1-216-055-00	RES,CHIP	1.8K	5%	1/10W
R915		1-216-061-00	RES,CHIP	3.3K	5%	1/10W
R916		1-216-017-91	RES,CHIP	47	5%	1/10W
R917		1-216-041-00	RES,CHIP	470	5%	1/10W
R918		1-216-041-00	RES,CHIP	470	5%	1/10W
			<RELAY>			
RY601	⚠	1-755-299-11	RELAY			
			<SWITCH>			
S502		1-572-707-11	SWITCH, LEVER			
S600	⚠	1-571-433-31	SWITCH, PUSH (AC POWER)			
S901		1-692-431-21	SWITCH, TACTILE			
S902		1-692-431-21	SWITCH, TACTILE			
S903		1-692-431-21	SWITCH, TACTILE			
S904		1-692-431-21	SWITCH, TACTILE			
S905		1-692-431-21	SWITCH, TACTILE			
S906		1-692-431-21	SWITCH, TACTILE			
S907		1-692-431-21	SWITCH, TACTILE			
			<TRANSFORMER>			
T501		1-437-195-11	TRANSFORMER, HORIZONTAL DRIVE			
T503	⚠	1-453-313-11	TRANSFORMER ASSY, FLYBACK NX-1912//M3A4			
T503		8-598-852-10	FBT ASSY NX-1912//Q			
T601		1-424-682-11	TRANSFORMER, LINE FILTER			
T603	⚠	1-433-512-41	TRANSFORMER, CONVERTER (SRT)			
T604	⚠	1-431-852-11	TRANSFORMER, CONVERTER (SRT)			
			<THERMISTOR>			
THP600		1-810-961-11	THERMISTOR, POSITIVE			

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

A **C3**

REF. NO.	PART NO.	DESCRIPTION			REMARK
		<TUNER>			
TU101	8-598-449-01	TUNER, FSS BTF-LG433			
		<CRYSTAL>			
X001	1-579-125-11	VIBRATOR, CERAMIC			
X301	1-781-134-21	VIBRATOR, CRYSTAL			
X302	1-781-132-21	VIBRATOR, CRYSTAL			
******	*	**********			
	* A-1332-001-A	C3 BOARD MOUNTED			
		**********			
	4-382-854-11	SCREW (M3X10), P, SW (+)			
		<CAPACITOR>			
C701	1-162-114-00	CERAMIC	0.0047MF		2KV
C702	1-102-074-00	CERAMIC	0.001MF	10%	50V
C703	1-107-651-11	ELECT	4.7MF	20%	250V
C704	1-130-202-00	FILM	0.022MF	5%	400V
C708	1-102-114-00	CERAMIC	470PF	10%	50V
C709	1-102-114-00	CERAMIC	470PF	10%	50V
C710	1-102-114-00	CERAMIC	470PF	10%	50V
C712	1-102-116-00	CERAMIC	680PF	10%	50V
C713	1-102-116-00	CERAMIC	680PF	10%	50V
C714	1-102-116-00	CERAMIC	680PF	10%	50V
C716	1-126-933-11	ELECT	100MF	20%	16V
C717	1-102-106-00	CERAMIC	100PF	10%	50V
C718	1-126-933-11	ELECT	100MF	20%	16V
C719	1-102-116-00	CERAMIC	680PF	10%	50V
C736	1-102-114-00	CERAMIC	470PF	10%	50V
C737	1-102-114-00	CERAMIC	470PF	10%	50V
C746	1-102-114-00	CERAMIC	470PF	10%	50V
		<CONNECTOR>			
CN701	1-508-765-00	PIN, CONNECTOR (5MM PITCH) 3P			
CN702	1-695-915-11	TAB (CONTACT)			
CN703	* 1-564-509-11	PLUG, CONNECTOR 6P			
CN704	1-695-915-11	TAB (CONTACT)			
CN706	1-695-915-11	TAB (CONTACT)			
		<DIODE>			
D701	8-719-911-19	DIODE 1SS119-25			
D702	8-719-911-19	DIODE 1SS119-25			
D703	8-719-911-19	DIODE 1SS119-25			
D707	8-719-911-19	DIODE 1SS119-25			
D708	8-719-911-19	DIODE 1SS119-25			
D709	8-719-911-19	DIODE 1SS119-25			
D710	8-719-911-19	DIODE 1SS119-25			
D711	8-719-911-19	DIODE 1SS119-25			
D712	8-719-911-19	DIODE 1SS119-25			
D716	8-719-911-19	DIODE 1SS119-25			

REF. NO.	PART NO.	DESCRIPTION				REMARK
D717	8-719-121-26	DIODE RD9.1ESL2				
		<JACK>				
J701	⚠ 1-540-071-22	SOCKET, CRT				
		<COIL>				
L701	1-410-667-31	INDUCTOR	22UH			
L706	1-408-619-31	INDUCTOR	220UH			
		<TRANSISTOR>				
Q704	8-729-326-11	TRANSISTOR 2SC2611				
Q705	8-729-326-11	TRANSISTOR 2SC2611				
Q706	8-729-326-11	TRANSISTOR 2SC2611				
Q707	8-729-200-17	TRANSISTOR 2SA1091-O				
Q708	8-729-200-17	TRANSISTOR 2SA1091-O				
Q709	8-729-200-17	TRANSISTOR 2SA1091-O				
Q710	8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q711	8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q712	8-729-119-78	TRANSISTOR 2SC2785-HFE				
		<RESISTOR>				
R703	1-249-496-11	CARBON	100K	5%	1/2W	
R705	1-216-376-00	METAL OXIDE	3.9	5%	2W	F
R708	1-216-377-11	METAL OXIDE	4.7	5%	2W	F
R710	1-216-487-11	METAL OXIDE	12K	5%	3W	F
R711	1-260-101-11	CARBON	1.5K	5%	1/2W	
R712	1-216-487-11	METAL OXIDE	12K	5%	3W	F
R713	1-260-101-11	CARBON	1.5K	5%	1/2W	
R714	1-216-487-11	METAL OXIDE	12K	5%	3W	F
R715	1-260-101-11	CARBON	1.5K	5%	1/2W	
R719	1-215-471-00	METAL	120K	1%	1/4W	
R720	1-247-704-11	CARBON	220	5%	1/4W	F
R721	1-215-477-00	METAL	220K	1%	1/4W	
R722	1-247-704-11	CARBON	220	5%	1/4W	F
R723	1-215-479-00	METAL	270K	1%	1/4W	
R724	1-247-704-11	CARBON	220	5%	1/4W	F
R725	1-249-424-11	CARBON	3.9K	5%	1/4W	
R726	1-249-424-11	CARBON	3.9K	5%	1/4W	
R727	1-249-424-11	CARBON	3.9K	5%	1/4W	
R728	1-249-410-11	CARBON	270	5%	1/4W	
R729	1-249-410-11	CARBON	270	5%	1/4W	
R730	1-249-410-11	CARBON	270	5%	1/4W	
R731	1-247-791-91	CARBON	22	5%	1/4W	
R732	1-247-791-91	CARBON	22	5%	1/4W	
R733	1-247-791-91	CARBON	22	5%	1/4W	
R734	1-247-739-11	CARBON	100	5%	1/2W	
R738	1-247-807-31	CARBON	100	5%	1/4W	
R739	1-247-807-31	CARBON	100	5%	1/4W	
R740	1-247-807-31	CARBON	100	5%	1/4W	
		<VARIABLE RESISTOR>				
RV702	1-241-656-21	RES, ADJ, METAL FILM 110M				

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Replace only with part number specified.

F

REF. NO.	PART NO.	DESCRIPTION			REMARK
******	*	**********			
	* A-1241-400-A	F BOARD MOUNTED			
		**********			
	1-533-223-11	CLIP, FUSE			
	* 4-374-846-01	COVER, CAPACITOR, CAP TYPE			
		<CAPACITOR>			
C654	⚠ 1-117-703-11	CERAMIC	0.0047MF	99%	250V
C4602	⚠ 1-104-708-11	FILM	0.47MF	20%	250V
		<CONNECTOR>			
CN4601	* 1-580-843-11	PIN, CONNECTOR (POWER)			
CN4602	* 1-580-843-11	PIN, CONNECTOR (POWER)			
CN4603	1-695-915-11	TAB (CONTACT)			
		<FUSE>			
F4601	⚠ 1-532-237-11	FUSE, TIME-LAG (BET) 3.15A/250V			
		<RESISTOR>			
R4601	⚠ 1-202-719-11	SOLID	1M	10%	1/2W
		<TRANSFORMER>			
T4601	1-424-682-11	TRANSFORMER, LINE FILTER			
T4602	1-424-682-11	TRANSFORMER, LINE FILTER			
		<VARISTOR>			
VDR461	1-803-830-31	VARISTOR ERZV14D621			
******	*	**********			

REF. NO.	PART NO.	DESCRIPTION	REMARK
		MISCELLANEOUS	
		**********	
	1-417-151-22	MATCHING TRANSFORMER, ANTENNA	
	1-419-185-11	COIL, DEGAUSSING	
	1-452-094-00	CIRCULAR DISC MAGNET B	
	1-452-032-00	MAGNET,DISC	
	1-501-372-82	ANTENNA, TELESCOPIC	
	1-504-305-11	SPEAKER (5X12CM)	
	1-569-008-21	ADAPTOR, CONVERSION 2P	
⚠	1-574-062-61	CORD, POWER (WITH CONNECTOR) 2.5A/250V	
	8-451-401-11	DEFLECTION YOKE (Y14RSA-S)	
⚠	8-735-570-05	PICTURE TUBE (A34LRG70X)	
******	*	**********	
		ACCESSORIES AND PACKING MATERIALS	
		**********	
	1-417-151-21	MATCHING TRANSFORMER, ANTENNA	
	3-867-872-11	MANUAL, INSTRUCTION	
	1-569-008-21	ADAPTOR, CONVERSION 2P	
*	4-072-370-01	INDIVIDUAL CARTON	
*	4-072-423-01	CUSHION (UPPER)(ASSY)	
*	4-072-424-01	CUSHION (LOWER)(ASSY)	
*	4-381-155-01	BAG, PROTECTION	
******	*	**********	
		REMOTE COMMANDER	
		**********	
	1-418-163-11	REMOTE COMMANDER (RM-952)	
	9-939-697-01	BATTERY COVER, REMOTE COMMANDER	

9-965-756-01

Sony Corporation
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TV Business of General Area

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